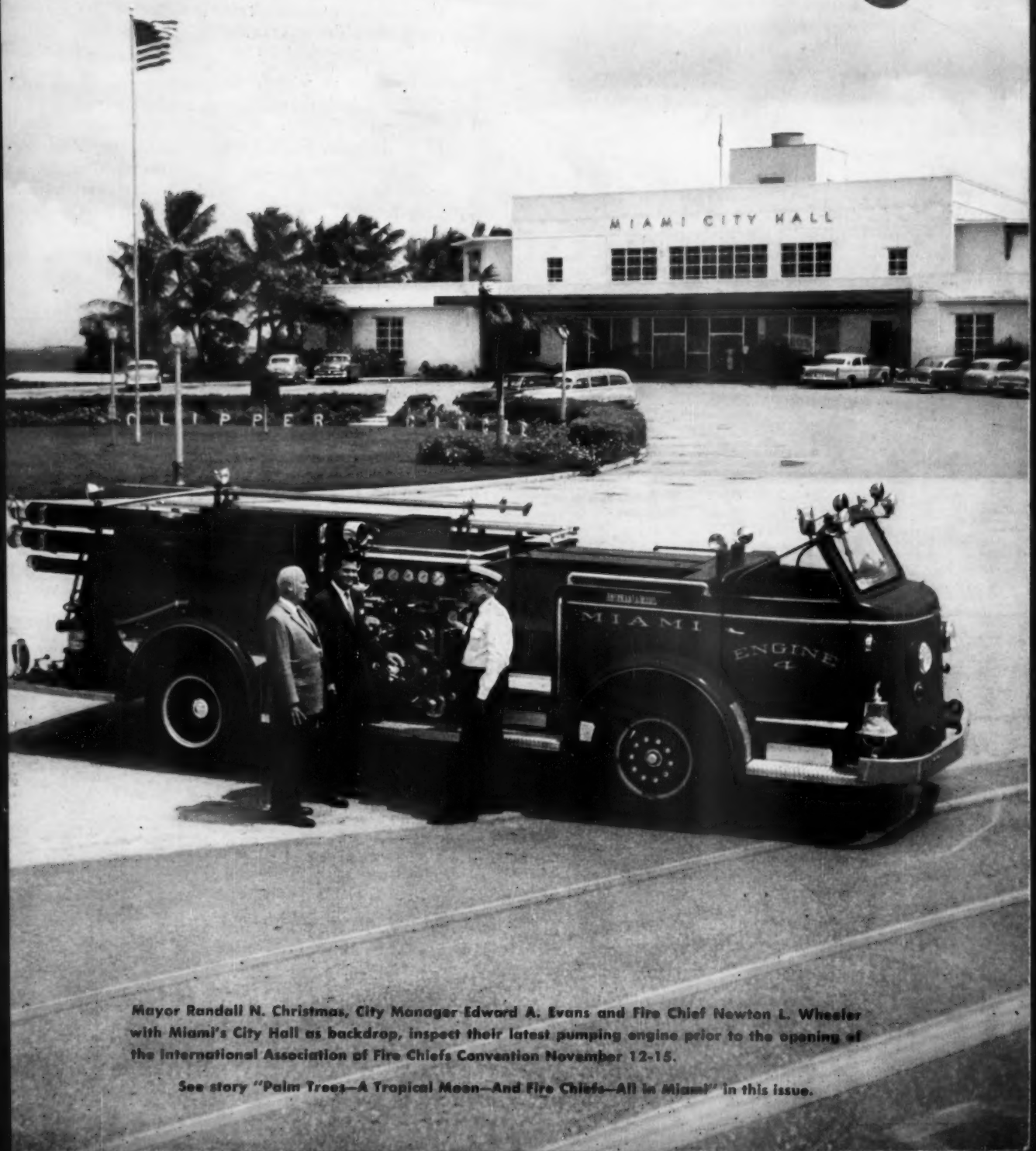
NOVEMBER 1956

The American City



Mayor Randall N. Christmas, City Manager Edward A. Evans and Fire Chief Newton L. Wheeler with Miami's City Hall as backdrop, inspect their latest pumping engine prior to the opening of the International Association of Fire Chiefs Convention November 12-15.

See story "Palm Trees—A Tropical Moon—And Fire Chiefs—All in Miami" in this issue.

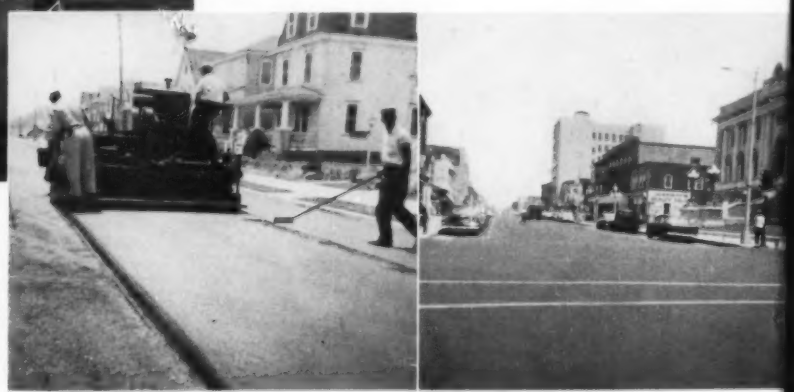
Population ups and downs do not affect Ocean City's Texaco-paved streets

Eighth Street, Ocean City, N. J., which leads to the resort's popular boardwalk, is paved with resilient, long-wearing Texaco Asphaltic Concrete. (Photo by Senior Studio, Ocean City)

The winter population of Ocean City, N. J. is 7,500. This soars to approximately 150,000 during the summer months. Traffic on the popular Jersey shore resort's streets multiplies in proportion.

Summer or winter, the performance of Ocean City's resilient, rugged Texaco Asphalt paving is uniformly satisfactory. A heavy-duty Texaco surface of the hot-mix, hot-laid type serves Asbury Avenue, principal business street of the community. The speed with which it is laid, its lasting smoothness, long life and low upkeep cost account for the construction of this type of paving on a substantial portion of the Ocean City street system.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the municipal official a number of heavy-duty, intermediate and low-cost types of street construction. Whatever your paving problem, one of these types will meet your requirements in all respects. Two helpful booklets, which furnish information concerning methods and materials recommended for all Asphalt street types can be obtained without obligation by directing a request to our nearest office.



Views of Texaco Asphaltic Concrete paving under construction and completed on Asbury Avenue, Ocean City's principal business thoroughfare.

CONTRACTOR . . . A. E. Stone, Inc., Pleasantville, N. J.

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TEXACO

REG. T. M.

TEXACO ASPHALT

NOVEMBER 1956

The American City

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The Cover Picture—

—is more reminiscent of the fires of Spring than of those rending flames which are all too familiar to members of the International Association of Fire Chiefs—meeting in Miami for the second time in the decade. The changes in the Miami Fire Department that have taken place in those eight years are sketched by the host Chief N. L. Wheeler in the meaty article which he titled "Palm Trees—a Tropical Moon-and Fire Chiefs—All in Miami" and which begins on page 112.

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For many a year, the Bell seal has been the signpost of telephone service. A little while ago we got to thinking that such a well-known symbol deserved a slogan.

We found six words that seem to sum up the story of the telephone and the telephone business . . . "Working Together to Bring People Together."

"Working Together" describes the spirit and co-operation of the telephone companies and the thousands of telephone men and women who help to provide the service.

"To Bring People Together" describes the greatest use of the telephone.

It is priceless in emergencies and indispensable in saving steps and time and getting things done. And one of its biggest values is in helping people keep in touch with each other.

Many a day is brightened just because someone reached for the telephone to exchange news and good wishes and a friendly greeting.

Isn't there someone you'd like to call right now?

BELL TELEPHONE SYSTEM

TUNE IN "TELEPHONE TIME"...The TV program with John Nesbitt's real life stories the whole family can enjoy together...Every Sunday over CBS...See your local newspaper for time and channel.

Downgrading the "Authorities"

IT takes no clairvoyance to recognize that resentment is brewing against "authorities," special districts, and other independent autonomous commissions that have spread over municipal governmental services today. Moreover, the resentment is rising in areas where it can hurt.

Take the little incident that occurred during the meeting of city managers in Banff, Canada, last September. At one of the sessions, the chairman said, "All those who like authorities say aye." The silence was stony.

Take the feature paper at the American Public Works Association Congress in Fort Worth later that same month, delivered by Dennis O'Harrow, executive director of the American Society of Planning Officials. In it he said caustically that a city using special districts or authorities, "exchanged one set of intelligent politicians, sensitive to the citizens' wishes, for a group of inept politicians who, because of their amateur standing, didn't give a damn about the citizens."

Most autonomous groups of this type came into being to help cities manage those services that have a commercial character. In general, they support themselves by rates charged for services provided, and do not need help from the general tax fund. In almost every case, they finance themselves with the familiar revenue bonds that are guaranteed only by the earnings of the service involved. This type of bond is frequently penalized by having to pay a higher interest rate that can add substantially to the cost.

As indicated, the professional manager does not particularly like them. The service handled by these independent boards or authorities are part of the activities of the city, and he likes to have them under his direction. Authorities in many cases have been created because of distrust of elected officials. A professional city manager, in contrast, believes in his elected official, recognizing him as a fundamental part of our rather unusual type of government that derives its power through the consent of the governed. He has trained himself in techniques that will bring a high degree of efficiency to a city whose policies are set by those who are sometimes scornfully called "politicians."

The special board or authority, by its nature, is privileged to be apart from the rest of the municipal functions, and to operate with no outside interference. But this does not mean that it is obligated to ignore the rest of the municipal family as well as the public it serves. As a matter of fact, this privilege of independence should induce responsibility of cooperation and coordination encouraged by the authority itself. Here are some questions that will lend themselves to self-examination:

1. Does the authority have a good system of receiving complaints from the public, and does it have an organization that acts on these matters promptly?

2. Does the authority honestly encourage public participation in its activities, by school groups, civic clubs, and others who will benefit by knowing how the service that it performs operates?

3. Does the authority encourage close coordination with the city council and other governing bodies with whom it deals by offering to send copies of the minutes of its meetings and by inviting members of the city council to attend the meetings to provide advice and counsel?

An authority still remains a tool that a weak, ineffective municipal government may have to use. Fortunately, mature, responsible municipal administrations are on the upswing, thus lessening the need for this decentralization of our city governments.

THE AMERICAN CITY

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VOLUME 71, NUMBER 11

THE AMERICAN CITY is issued monthly by THE AMERICAN CITY MAGAZINE CORPORATION. Subscription rates: $4 in the U. S. and Canada; $7 in all other countries of the world. Single copies, 50 cents. Back copies, $1. Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in the U. S. A. THE AMERICAN CITY is indexed regularly by Engineering Index, Inc., and the Readers Guide to Periodical Literature.

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Mount Vernon, N. Y. Wants More Shopping

In your September issue there is a story on page 26 entitled "Remedy Needed for Local Transit." It deals with the decline in local transit passenger loads occasioned by the rise in the number of motor vehicles on the road.

In our city of Mount Vernon, N. Y., the Common Council is concerned about the same problem and is working with the Chamber of Commerce on a plan whereby the retailers will adopt a modified Allentown plan, picking up the bus charges of their customers who make fixed dollar purchases.

I am sure that your magazine has some suggestions to make on how a municipality can encourage increased transit use and at the same time encourage more downtown shopping.

I am Chairman of the Bus Transportation Committee of the Council. Our city has an area of just 4¼ square miles and is served by three privately owned bus companies. We want to get our citizens to use the buses and keep their motor vehicles at home when shopping, thus easing the parking and traffic problems in our shopping center.

IRVING B. KENDALL
City Councilman
Municipal Building
Mount Vernon, N. Y.

Editorial Comment

The transit problem you mention in your letter of September 5 is pretty general. In 1952 we examined this problem with the aid of data and opinions supplied us by the presidents of public transit companies in 93 cities and by the mayors.

The result was the Municipal Index Basic Plan—Every City a Traffic Strainer. This was published in the 1953 Municipal Index and in THE AMERICAN CITY for April 1953. Its purpose is to reduce congestion and to vastly improve the central business district.

Reports from over 60 cities reveal an awareness of the tremendous possibilities opened up by the Plan. It is simple and certain. Step One is to divert through traffic by means of one or more circumferential freeways around the business district. Step Two is to provide parking areas along this freeway for commuter and other long-time parking and to prohibit long-time parking in the business district. In smaller cities the inner freeway or ring highway will be close enough to the business district to walk from the parked car to destination in the district. In the large cities where the freeway is 6-8-10 blocks or more from the business district, Step Three applies. Step Three is to see that convenient public transit service is provided to the parking areas along the encircling freeway.

Where the object is to secure a physical improvement of the business district, as well as to attain the drastic reduction in congestion, measures can be taken to give a plaza effect to one or several of the business streets. See the sketch on page 132 of the June issue of THE AMERICAN CITY.

In instances it may seem that a particular city lacks the area to provide a freeway. Usually, however, examination of the town map will show that certain streets around the business district can be developed into a circumferential system. Two examples are the cases of Quincy, Mass. (see schematic map on page 949 of the 1954 Municipal Index) and Riverton, N. J. (see page 147 of the August 1953 issue of THE AMERICAN CITY).

All this may look like a great deal of trouble to take, but it is a big problem. And watching use, let alone profits, dry up on city transportation systems all over the country would seem to make taking the trouble obligatory.

Illegal Sewer Connections

The article, "Fogger Detects Illegal Downspouts" (see page 15 of the October 1956 issue) is most interesting. While at the University of Illinois, we had a problem somewhat the reverse of Mr. Cotrell's. We had an open storm sewer, Boneyard Creek, to which many illegal sanitary connections had been made by many ingenious methods. To locate these connections we used a number of methods, but the most effective was to write a house address on a Ping-Pong ball and then flush it down the water closet. If the ball showed up in Boneyard Creek, we then had our case against the illegal connection.

E. ROBERT BAUMANN
Associate Professor
of Civil Engineering
Iowa State College, Ames, Iowa

For Better Uniforms

We should like to urge the Purchasing Agent of every city having a population of more than 100,000 as well as the Purchasing Agent of every state to place orders for uniforms at certain advantageous times of the year. They will thus, we hope, indicate delivery dates which will facilitate prompt and efficient deliveries rather than picking out times that occur during the peak of the uniform season. Also, they will, it is hoped, place their orders far enough in advance to give the producer of the apparel sufficient time to do an efficient job.

S. J. CUMMINGS, *Exec. Secretary*
National Association of Uniform
Manufacturers, Inc.
New York, N. Y.

Inspires Corrective Programs

We wish to compliment you on your articles covering city actions to abate problems of sanitation in municipalities, and in particular, your material on the sanitary landfill and on insect and rodent control. These have been well received by officials in Wyoming and have motivated action for similar corrective programs.

May I add that subscriptions to THE AMERICAN CITY have been of great help to cities in our area by showing how others have solved problems common to all. Administrators, particularly in the small communities, will gain a wealth of information through this publication.

J. E. GUINN, *Chief Sanitarian*
Food and General Sanitation
Section, Wyoming Department
of Public Health, Cheyenne, Wyo.

Peter J. Boesen Dies

PETER J. BOESEN, 60, transit engineer with the Chicago Transit Authority since it became an operator in October 1947, died at his home, 2722 West Fitch Ave., Chicago, on July 21.

In 1935, he helped establish a plan to solve Chicago's transit problem. Later, as transit engineer for CTA, he helped plan the $150,000,000 modernization program now nearing completion.

W. M. HOWLETT
Supervisor of Publications
Chicago Transit Authority

Chicago uncorks massive traffic bottle-neck in only 47 working days with Asphaltic concrete

Foster Avenue (off left at bottom of picture) used to be the downtown terminus of Chicago's famed Lake Shore Drive.

Then vehicle density topped 60,000 per day. Jams grew monumental. So did tempers.

To relieve the situation, Cook County engineers built the double-access, 8-lane 5,000-foot extension shown.

For durability, modern smooth-riding qualities and, above all, speed of construction, they paved with Asphaltic concrete . . . 4½" over an 8" crushed stone base.

This huge paving job was done in only 47 days. Next day, a month ahead of schedule traffic purred contentedly over the smooth-riding Asphalt surface.

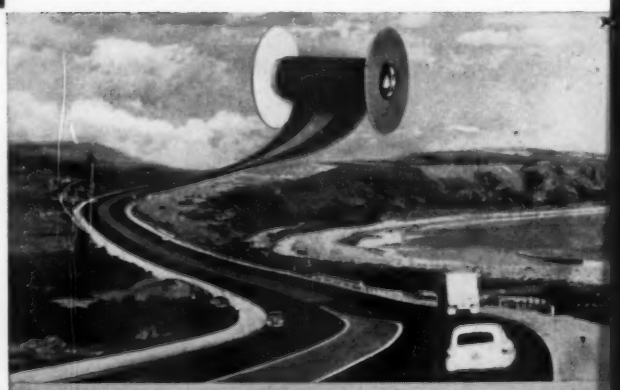
Modern city traffic demands modern Asphalt pavement. It goes down quickly and at low cost. It's versatile, long-lasting, easy to maintain. Speeds snow and ice removal. Unharmed by de-icing salts.

Use modern Asphalt pavements to uncork your city's traffic bottlenecks.

"Choice of Asphalt well-advised," says William J. Mortimer, Supt. of Highways, Cook County, Illinois.

"The short paving period, plus the fact that the pavement was opened to traffic immediately, was evidence that the choice of Asphalt was well-advised. Now in use almost three years under heavy-traffic conditions, the road has maintained its original contour."

THE ASPHALT INSTITUTE
Asphalt Institute Building
College Park, Maryland



Ribbons of velvet smoothness . . .
MODERN **ASPHALT** HIGHWAYS

Savannah, Ga., Modernizes Its Rolling Stock

The new units will add greatly to the efficiency of Savannah's municipal fleet.

ON April 27, 1956, the City of Savannah, Ga., received bids for the furnishing of 32 pieces of automotive equipment. This was the first step toward modernizing the city's municipal fleet of about 160 vehicles.

We prepared specifications by having one manufacturer submit a base specification that was then reviewed and modified to fit our individual need by the Engineering Department. We then invited the dealers of competitive makes to review the preliminary specifications and make such changes as they considered necessary to bid on standard items of equipment. In this manner, the city assured itself of receiving the lowest possible prices and the automotive dealers were sure that the specifications were drawn on an equitable basis.

We considered the complete sum when giving the award since the over-all price would be low and we would standardize on one make of vehicle, thereby reducing our parts inventory and simplifying our maintenance problem.

The equipment bid upon included one panel truck, one carry-all, eleven ½-ton pick-up trucks, one ¾-ton truck, eleven 18,000 GVW dump trucks, and seven 24,000 GVW trucks.

Of six bidders, the International Harvester Company was low with a figure of $71,590.63, and was awarded the contract. Next in line came J. C. Lewis Company (Ford) with $74,491 and Dearing Chevrolet with $74,513.62 (evaluated basis).

Harold Roberts of the International Harvester Company delivers equipment to municipal officials. Left to right: Mr. Roberts, J. C. McAfee, president, Power Brake and Wheel, Inc.; J. D. White, acting director of Public Improvements, who is representing Gar Wood; Louis Cornell, construction superintendent; and Francis Overstreet, master mechanic.

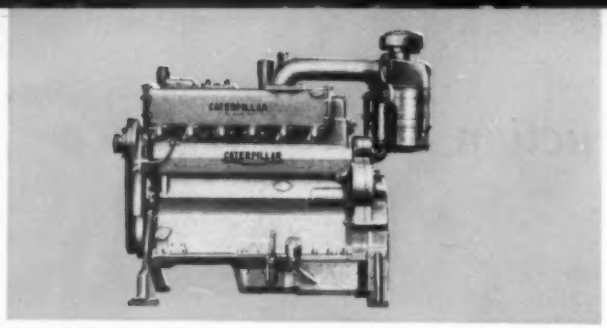
The truck manufacturer was required to furnish complete units in each case except for garbage packer units. Packer bodies were bought separately and included one Hydepak and four Gar Wood units.

JOHN D. WHITE
Acting Director
Public Improvements
Savannah, Ga.

Equipment Key to Good Roads

Left.
Along with housing comes additional street construction and maintenance work. Here a Galion Model 503 road grader spreads gravel on a newly constructed street.

Right.
Bituminous resurfacing makes old roads look—and ride—like new. Proper spreading and rolling can make the difference between a smooth surface and a bumpy one.



A QUARTER CENTURY OF

A CATERPILLAR FIRST
—the "Hi-Electro" hardened cylinder liner

A CATERPILLAR FIRST
—the chemically conditioned cylinder liner

A CATERPILLAR FIRST
—the stainless-steel piston protector

A CATERPILLAR FIRST
—the steel-backed aluminum bearing

A quarter of a century ago, Caterpillar created mobile diesel power. For the first time, the power of the diesel engine was unleashed from its bulky foundations and put to work in the field—compact, economical. Here was diesel power of simple design, with no need for experts to operate and maintain. Here was diesel power with the lugging ability to knuckle down to the tough jobs.

The introduction of mobile diesel power was a tremendous advance in many fields. It provided efficient diesel power for tractors, motor graders, earthmoving equipment . . . for the work boat, the gin, the locomotive, the oil rig, the municipal plant . . . for *any* application in which steady, low-cost power is crucial. And everywhere, CAT* Diesel Engines proved themselves durable and dependable. They established Caterpillar as the leader in diesel engineering.

Today, hundreds of thousands of modern heavy-duty Cat Diesels are on the job in every corner of the world. And still the research continues. Study and experiment go ahead constantly in Caterpillar laboratories. Special testing machines help point the way toward new advances. Manufacturing techniques improve, too, in the world's largest diesel engine factory—where the quality of workmanship is the standard for the industry.

A modern world must have modern power—more and more of it. It is coming, in ever increasing quantity, from the production lines of Caterpillar, the leader.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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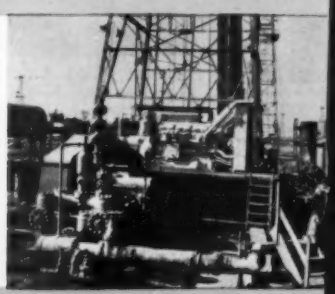
DIESEL POWER FOR PROGRESS



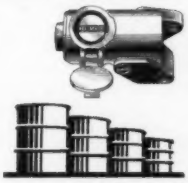
DIESEL LEADERSHIP

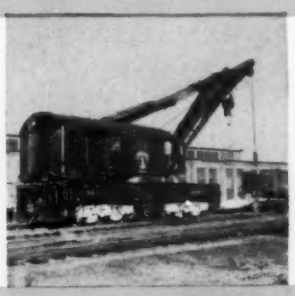
A CATERPILLAR FIRST
—interchangeable, adjustment-free fuel injection equipment

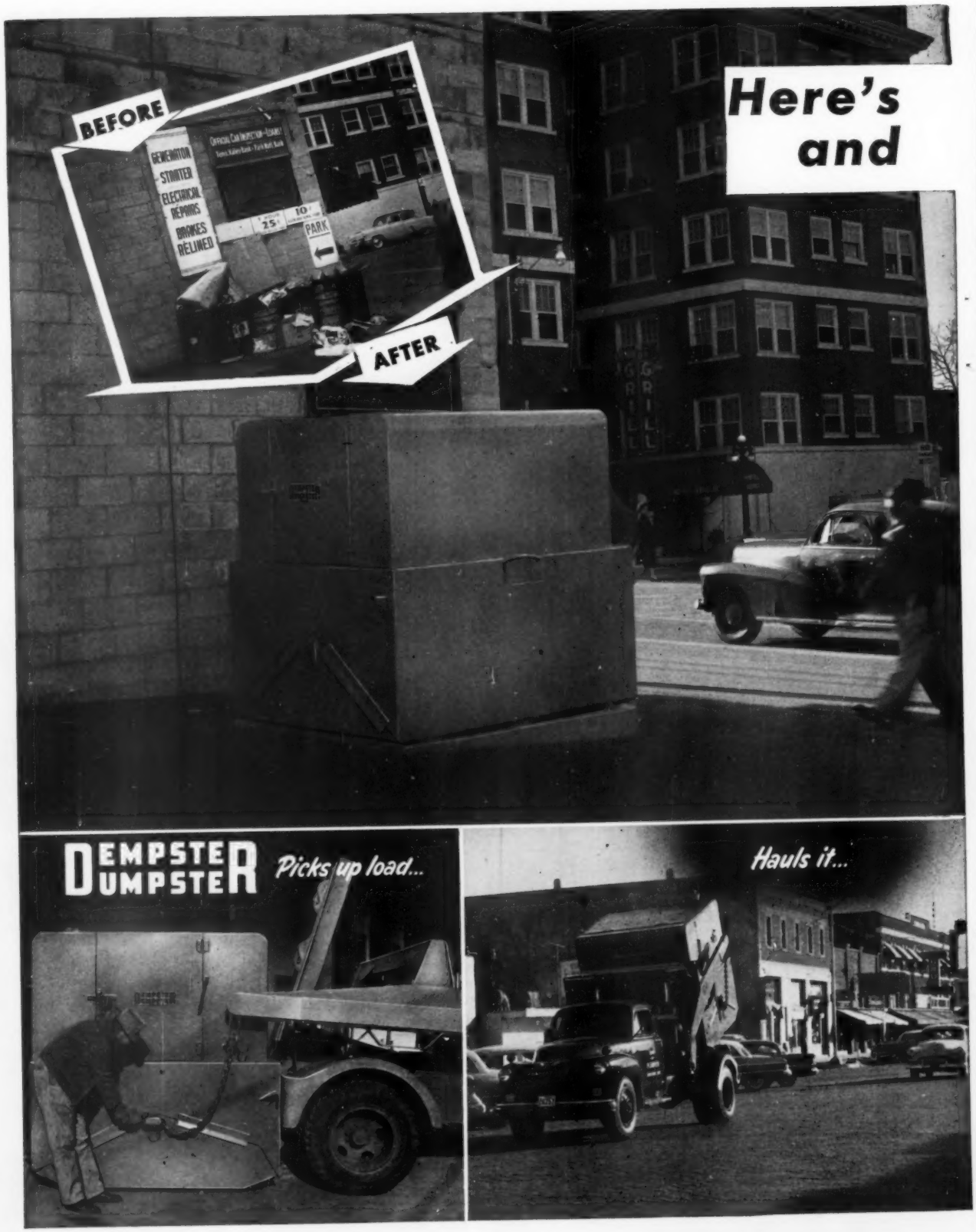
A CATERPILLAR FIRST
—the capsule-type injection valve

A CATERPILLAR FIRST
—the service meter

A CATERPILLAR FIRST
—superior lubricants (detergent oils)







DEMPSTER

5204

the solution to unsanitary costly bulk refuse collection...

... a simple, economical and nationally recognized solution to the problem of open cans, crates, etc, with overflowing loose refuse - - a costly potential in disease and fire hazards alone in damage to persons and property!

BIG STEEL DEMPSTER-DUMPSTER CONTAINERS—each equivalent to 75 ordinary trash cans —can be located at convenient bulk refuse accumulation points in your business areas . . . in housing and apartment areas . . . at schools, hospitals, etc. Scores of them—25, 30, 40, 50—served on pre-arranged schedule by only one man, the driver of your truck-mounted Dempster-Dumpster.

Invariably, wherever this system is installed, one finds immediate praise of an outstanding improvement from merchant users and citizens alike. Without question, the Dempster-Dumpster System is recognized as the most sanitary and lowest cost method of bulk refuse collection ever devised.

Without obligation on your part, our engineers will be glad to make a comprehensive fact-finding survey to determine the savings you can expect by the use of this amazing system. For instance, a year ago the system was installed at Borger, Texas "and has proven to be the answer to our trash and garbage problems in the business districts", writes City Manager Fritz Thompson. Now, it is being enlarged and Mr. Thompson confirms what our original survey pointed out that the Dempster-Dumpster equipment is being amortized out of labor savings alone in approximately four years. In nearby Plainview for another example, Mayor C. L. Abernethy tells us "We have found, as your original survey pointed out, that the labor savings alone will amortize the cost of the Dempster-Dumpster System within the first three years of its operation." Plainview has one Dempster-Dumpster serving 58 containers. Write us today! Dempster Brothers, Inc.

Dumps it...

HERE ARE A FEW OF THE SCORES OF CITIES, LARGE AND SMALL, USING THE DEMPSTER DUMPSTER® SYSTEM

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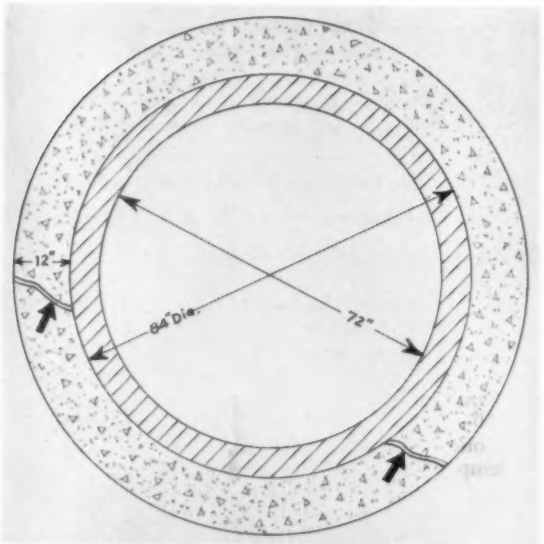
Lakeland, Fla.
Lubbock, Texas
Pampa, Texas
Wilmington, N. C.
Richmond, Va.
Rochester
New York City
Denver
Montgomery, Ala.
Odessa, Texas
Wyandotte, Michigan

BROTHERS 8116 Dempster Bldg., KNOXVILLE, TENNESSEE



The heavy black arrows on each side of the outside circle of this sketch indicate exactly where the sewer breaks occurred.

Liner plates bolted into place rescue an important trunk sewer threatened with complete failure.

A Sewer Rescue Job

By EARL PATTON, *City Engineer, Owensboro, Ky.*

IN Ownesboro, our big 84-inch sewer was in trouble. It originally had been placed by tunnelling through quicksand, however, pressures and ground movement had cracked it, and the highly fluid sand had poured in to create an extremely difficult problem. To make matters worse, the sewer was 42 feet underground and had to be kept in operation while being repaired. The sewer had a long, diagonal break about half way up one side, and extending just a little above the flow line on the opposite side.

To salvage the sewer, we first had to stop the flow of sand through the cracks and next had to reline the pipe itself. To check the incoming sand, we drilled holes in the side of the pipe and pumped 1,000 sacks of cement through them into the outer area, using Halliburton Pressure equipment normally used for cementing oil-well casings. This equipment did the job nicely.

Lining Installation

Next, we began the installation of Armco curved, corrugated steel liner plate sections. These were taken into the sewer and bolted together from the inside to make an integral lining throughout. The offset lapped joints provide extra strength needed at this critical point. The result has been a 72-inch structure, assembled from 10-gauge bituminous-coated plates. After completing the installation of the liner, grout was forced into the space between the liner plates and the old sewer.

The entire job has been most successful. There have been no interruptions in the efficiency of the sewer and, so far as I have been able to determine, the ridges created by the liner plates have not caused any flow problems in the sewer.

In my opinion, if this work had not been done immediately, the break would have cost many thousands of dollars more than it did. The sand was moving in so rapidly that it would have quickly put this important trunk sewer out of service and seriously harmed a large portion of the city. Instead, combating action avoided this hazard.

Sewage Sterilization Research

UNDER the sponsorship of the Army Chemical Corps, the Armour Research Foundation of Illinois Institute of Technology is studying the use of ionizing radiation as one possible method for sterilization of sewage containing bacteria, viruses, fungi, and toxins.

Clarke E. Thorp, manager of the Foundation's chemistry and chemical engineering research department, points out that the purpose of the program is to evaluate means of completely sterilizing sewage.

Heat in the form of steam is the most commonly used method of sterilizing sewage according to Dr. Richard Ehrlich, supervisor of biology and bacteriology at Armour Research Foundation. In regard to this work, Dr. Ehrlich states that more work remains to be done to determine the full bacteriological engineering and economic feasibility of irradiation techniques in this field.

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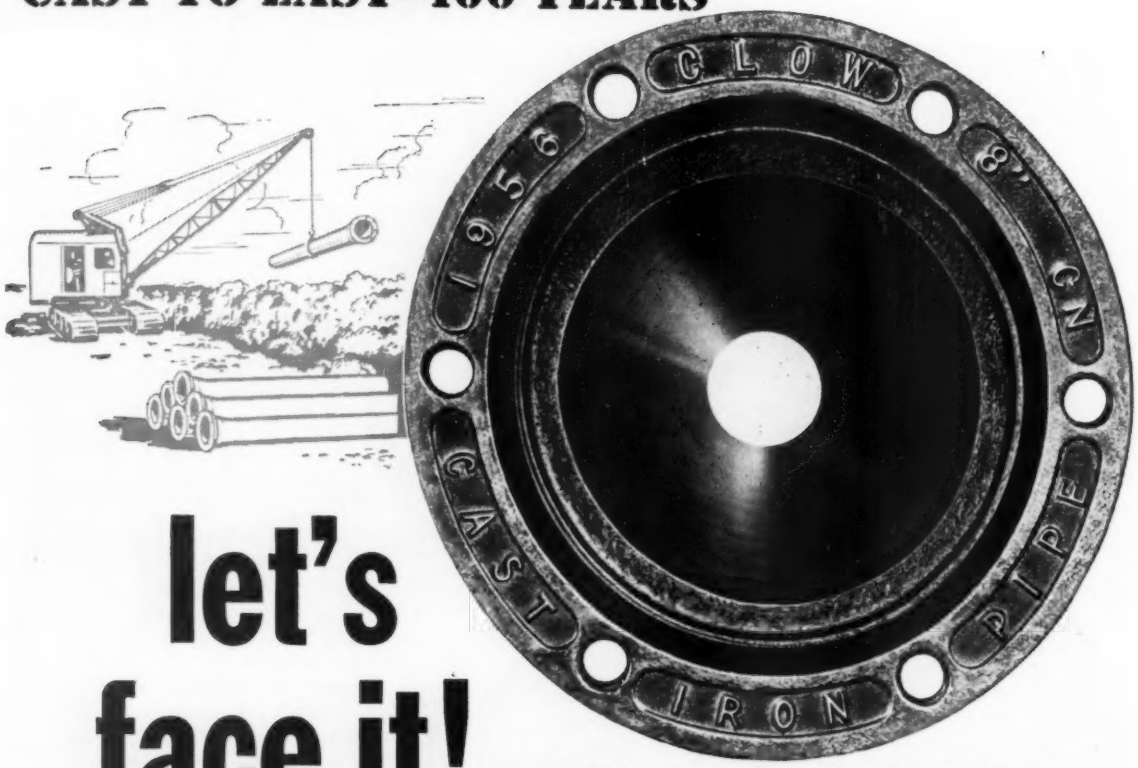

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Our Municipal Notebook

Local Public Support Key to Highway Program Success

LOCAL RESISTANCE to new highway locations may hamstring the new $33.8-billion federal highway program unless sufficient public support for specific projects can be mustered. This warning was sounded at the recent annual conference of the Institute of Traffic Engineers, the national professional organization of highway and street system planners.

Meeting in San Francisco in September, the Institute heard a series of prominent speakers urge that the following problems, among others, be given immediate attention if the hope of spending the full $33.8-billion in the time allotted is to be achieved: (1) marshalling public support for local highway projects; (2) attracting a sufficient number of trained highway engineers into the profession in order to complete the planning and design job necessary, and (3) overcoming the lack of administrative cooperation among municipalities, many of which are in metropolitan areas through which many of the proposed highways will pass.

Meanwhile Back in Westchester

While the traffic engineers were discussing the potential problem of public resistance in San Francisco, highway planners at the other end of the continent were meeting the problem face to face. In Westchester County, N. Y., criticism of a proposed network of 60-mile-an-hour highways took an interesting turn.

There, residents of a group of suburban communities in the northern part of the county lashed out at county planning commission planners for plotting routes of highways that would be needed and constructed in the next five to 25 years. Announcement of the highways so far in advance, the residents complained, has caused so much local unrest that property sales have dropped and land values are threatened. Led by residents of suburban Lewisboro, a 25-square-mile-community with a population of 3,000, the irate complainants have suggested that the maps of the proposed roads be withdrawn, that new projections of the roads not be publicized until definite rights-of-way can be fixed, financing is assured, and early construction is a certainty.

Planners of the Westchester County Planning Department, who proposed the routes, continue to maintain their belief, however, that they are properly performing their function of guiding the country's residential and commercial development by pointing out future traffic needs and designating logical routes for new roads.

Definitive History of City Planning to be Written

THE first world-wide history of city planning in English is about to be written. The University of Pennsylvania has announced that it will undertake a three-year history-writing project which will review the history of city development in each of the world's major regions.

The project, to be financed by a $54,000 grant from the Rockefeller Foundation, will be under the direction of the Institute for Urban Studies in the University's School of Fine Arts. The work is expected to fill an important gap in city planning literature. Existing histories in English deal mainly with western cities and those written in other languages are generally considered outdated.

Heading the project will be Dr. E. A. Gutkind, architect and city planner of London and visiting Research Professor in City Planning.

In connection with the program, the University of Pennsylvania is offering six graduate research fellowships in city planning to city planners, historians and graduates in regional, Oriental and Asian studies. Applicants should write to the Director, Institute for Urban Studies, School of Fine Arts, University of Pennsylvania, Philadelphia 4, Pa.

REPRESENTATIVE MUNICIPAL BOND ISSUES

October 1 to October 9, 1956

Date of Issue	*Municipality*		*Purpose*	*Average Maturity (Years)*	*Net Interest Cost or Basis (Per Cent)*
10/1/56	Euclid, Ohio	$1,000,000	Sewer Construction	14	3.286
10/1/56	Granby, Que.	28,000	Water Works and Sewer Improvement	10½	5.187
10/2/56	Athens, Ga.	600,000	Traffic Improvement General Obligation	17½	3.20 (basis)
10/2/56	Lawrence, Mass.	150,000	Water	8	3.12½ (basis)
10/3/56	Adams Co., Ind.	450,000	Hospital Improvement	10½	2.866 (basis)
10/3/56	Arcade, N. Y.	50,000	Steam Plant	11½	3.48 (basis)
10/3/56	Cranford Tp., N. J. School Dist.	1,763,000	School Building	16½	3.215 (basis)
10/3/56	Franklin, Mass.	85,000	Sewer	7⅛	2.983 (basis)
10/3/56	Topeka, Kan.	765,000	Street and Alley Paving	5½	2.496
		312,000	Storm Sewer	5¼	
		100,000	Sanitary Sewer	5½	2.496
		303,000	City Park Pumping Station	5½	2.496
		77,000	Street Repair	5¼	2.496
10/4/56	Buffalo, New York	500,000	General Improvement	2	2.3452
		2,285,000	General Improvement	3	
		1,890,000	School	6⅝	
		499,000	Water Supply (1955)	5¾	
		2,020,000	Water Supply (1956)	7⅝	
10/4/56	Mount Vernon, New York	297,000	Highway Improvement	5¾	2.47 (basis)
		170,000	Parking Lot	11⅓	
		85,000	Equipment	3	
		65,000	General Improvement	4⅝	
10/8/56	Canton, Conn.	355,000	School	9¾	3.20 (basis)
10/8/56	Milton Tp., Mich., School Dist. No. 36	110,000	Building	18	4.24 (basis)
10/9/56	Brockton, Mass.	50,000	Water	3	2.40 (basis)
10/9/56	Fall River, Mass.	380,000	Municipal Relief	1½	2.59 (basis)
10/9/56	Pittsburgh, Pa	3,500,000	General Public Improvement Series A	10½	2.68
10/9/56	Pittsfield, Mass.	120,000	Street Construction	4½	2.56 (basis),

Compiled from *The Bond Buyer*

Our Municipal Notebook

Voters in Eleven Cities Get Local Candidate Appraisals Before Election

HELPING CITY VOTERS appraise the qualifications of candidates for municipal offices during election periods has been the job of citizen associations for periods ranging from three to 59 years.

A recent survey conducted by the Municipal League of Seattle and King County, Wash., shows that the heads of many such associations believe that "providing voters with enlightening information about candidates for local public office should be as much a function of a civic league as delivering milk is to a dairy."

Cities where citizen civic associations provide candidate appraisals include: Cincinnati, Cleveland, Detroit, Kansas City, Minneapolis, New York City, Pittsburgh, San Francisco, Seattle, Vancouver, B. C., Worcester, Mass.

The findings of the survey show the following:

Experience. The many years' experience of some of these agencies in reporting on candidates, shows that it is no more of an untested experiment than a voting machine itself. Four have issued candidates' reports for more than 40 years.

Which Candidates? All of these agencies report on city candidates and most also report on those for county, school, and legislative offices. Few report on federal congressmen.

Recommendations for a Particular Slate. Five of the 11 report that they recommend a "slate" to the voters. Several others say that they tie the labels "endorsed," "qualified," "recommended," or "preferred" to some candidates. This really accomplishes the same goal as the slate. One evaluates the public and community record of every candidate. A few give only biographical data about each candidate.

How Appraisals Are Made. Appraisal of candidates is made by special committees of these agencies. In one, the committee is bipartisan. In others, members are selected for their objectivity and community repute, although a conscious effort is made to include a few party members who can supply background information about some candidates.

Candidates' Attitude Toward Appraisals. Candidates apparently are not averse to this reporting on them. Seven agencies report 80 to 100% cooperation by candidates in submitting to interviews.

The committee report usually is approved by the agency board or trustees.

Distribution. Several agencies mail their reports to all the registered voters in the city. Others distribute from 25,000 to 100,000 copies in various ways. In most cases, the local newspapers print the report verbatim or a comprehensive summary.

New Film Spurs City Planning and Slum Elimination

A NEW hour and one-half screen presentation that dramatizes the techniques that communities can use in fighting slums and blight has started on an eight-month tour of some 90 cities and towns around the country. Distributed by ACTION (American Council to Improve Our Neighborhoods), the film is designed to spur the formation of active citizen groups dedicated to the eradication of slums through local improvement programs. To be sponsored in each city by representative hometown groups, the show opened in New Haven, Conn., on September 29 and will be presented in Lowell, Somerville, Cambridge, and Springfield, Mass., after which it will tour Buffalo, Schenectady, Troy and Niagara Falls, N. Y. The tour, which will continue through May of 1957, will head West where such cities as Akron, Fort Wayne, Oklahoma City, and Dayton have already booked showings.

The presentation, which combines motion pictures and photographs, both in color and in black and white, with a three-dimensional animation technique and an in-person lecture, has been prepared by *Life* Magazine as a public service contribution to ACTION's continuing program dedicated to improvement of homes, neighborhoods, and communities. David Keith Hardy, writer and lecturer on *Life's* staff, produced the show and presents the narration while the films are cast on a large panoramic screen.

Community groups are not charged by ACTION for the presentation. Local sponsors, however, may charge admission fees if they so desire and use proceeds for local purposes of their own choice.

Describing the presentation of the pre-release showing in New York on September 26, James E. Lash, executive vice president of ACTION said, "This film stresses the positive story of what cooperative citizen action is accomplishing toward solving the problems cities face and concludes with the theme that such cooperation is the key to the solution of these problems."

Specifically the film shows:

1. A visual diagnosis of the anatomy of slum conditions: delinquency, crime, disease, fire hazards, etc.
2. A look at blight, what is it, and what its telling symptoms are.
3. The effect of slum problems on one family in a typical American city.
4. The complex problems of city life that contribute to the formation of slums: downtown congestion, the move to the suburbs, traffic and transportation problems, etc.
5. A description of how any city can mobilize its people and resources to fight slum growth, and
6. A report on the concrete progress being made in three communities that have well-organized citizen-backed programs for fighting slums.

Big Chattanooga Project Gets Special Study Techniques

SOME 430 ACRES of slums and blighted housing adjacent to the central business district of Chattanooga, Tenn., are slated for renewal in this 140,000-person southern city. Called the West Side Urban Renewal Area, the project will be one of the largest in the United States. Some 3,000 families live on the renewal site which includes areas that in past years were among the finest in Chattanooga.

City Urban Renewal Director Robert E. Barkley reports that the technical studies that will lay the basis for the final renewal plan are being approached in a unique manner. Mr. Barkley notes, for example, that a market analysis of demands for various types of land uses in the entire metropolitan area of Chattanooga is being prepared prior to the development of a detailed site plan for the redeveloped West Side Project.

Land acquisition costs are also to be determined in a new way. Although preliminary estimates of land costs for renewal studies in other cities are often made by expanding assessment values to sales values, this method cannot be used in Chattanooga since real estate transac-

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tions in the project area have been too few to establish an accurate assessment-sales-ratio. To obtain an accurate cost estimate, final detailed appraisals are to be prepared for a carefully selected sample of all property slated for acquisition. These sample appraisals will then be expanded to represent the value of all property. The sample will consist of 100% of the business and apartment properties and about 25% of the dwelling units.

New Cities Needed to House Future Growth

CATHERINE BAUER, noted writer and lecturer on housing and city planning policies, calls for the development of entirely new urban communities of up to 500,000 persons as the best means of housing the vast urban population growth that will take place in the United States in the next 20 years.

Writing in the September issue of *Architectural Forum*, Miss Bauer suggests that some of the new cities be established in or near the urban complex of existing metropolitan areas and some be entirely divorced from existing urban areas. The creation of new cities is advocated as the most logical choice among alternative approaches to the problem of absorbing the 55 million additional people who will want to live in the nation's metropolitan areas by 1976.

Miss Bauer rejects as inappropriate solutions (1) skyscraper cities in which the expanded urban populations are housed in high-density "high-rise" apartments set in park-like green areas, (2) extremely low density developments that stretch endlessly into now rural areas, and (3) small independent self-contained garden cities entirely removed from the metropolitan complexes of the present.

A modification of the new town concept being experimented in England and Scotland but expended to meet American conditions, Miss Bauer thinks, offers the best solution to the critical population absorption problem facing this country. The new cities would be large enough to support office centers, provide varied industrial employment and all price levels and kinds of housing . . . "including the intermediate density types now ignored by both . . . [the suburban] . . . tract builder and the supercity-minded redeveloper."

New Planning Course for Ohio State University

THE Ohio State University announces that it will establish a two-year program of graduate study in city planning beginning this winter.

Rapid changes in patterns of urban and suburban life, Ohio State's President Novice G. Fawcett explained, have created "an urgent need" for research and instruction in this field.

The program, to be administered by the School of Architecture and Landscape Architecture, will offer a broad curriculum and may eventually include research and instructional programs in regional development.

Curfew Ordinances in Three U. S. Cities

THREE U. S. cities have been studying curfew problems, according to the International City Managers' Association.

Albert Lea, Minn., passed a curfew ordinance, prepared with help from a citizens' committee, which included teen-aged representatives from local high schools. The ordinance forbids anyone under 16 years of age to be on the streets or in public places between 10:30 p.m. and 5 a.m., unless accompanied by a parent, guardian, or custodian. Violators are to be delivered into the care of a guardian or held at the city police station until called for. A special exception is made for "prom night" when members of the junior and senior high-school classes are exempt and for "homecoming dance night" when high-school students may be out until 1 a.m.

The city manager of ***Rock Island, Ill.,*** recommended that the city council not adopt a general curfew ordinance in the absence of an emergency. He did recommend, however, that certain areas or places might be studied with a view to declaring them off-limits for young people late at night.

Atlanta, Ga., had a 30-day trial of a curfew ordinance that banned persons under 18 years of age from the streets after midnight. Officials said that during the trial period offenses involving juveniles and juvenile arrests decreased.

A study by the Florida Children's Commission noted that authorities are divided on the advisability of curfew. But the experts agree that a curfew alone is not enough to stop juvenile delinquency. Recreation and mental hygiene programs and other preventive measures are also seen as necessary.

Volunteers Catalog Borough Ordinances

IN VERONA, N. J., borough ordinances are being abstracted, cataloged, and indexed by a group of 60 housewife volunteers—all through the suggestion of a councilman's wife.

The 60 women are members of the Verona League of Women Voters. Mrs. Arthur C. Krauss, wife of one of the councilmen, suggested that the League save the borough about $6,000 by making the index of all ordinances passed since Verona was incorporated in 1907. The project will remove obstructive and obsolete ordinances, and make the balance easily identified.

Some of the old ordinances placed a ban on cock fighting, prohibited the random movement of horses and cows on Verona's streets, and fixed the salary of police marshals at $3 for a 12-hour day, or $3.50 for a night patrol.

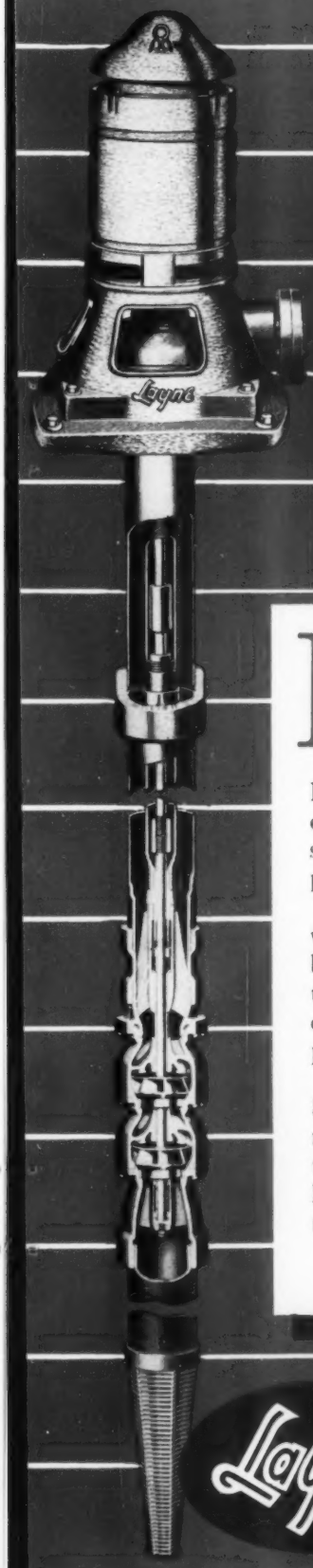
Rabies Control Film Available to Cities

A NEW FILM, "Rabies Control in the Community," can now be obtained from the Public Health Service, Communicable Disease Center, 50 Seventh St., NE., Atlanta 23, Ga. It is 16mm black and white film with a sound track, and runs for 11 minutes.

The film has been designed to encourage better understanding of the rabies problem in a community, and to promote a 3-point program for the control of the disease on a community basis. It has not been filmed for technical training, for use in medical schools, or for television use.

The film shows actual cases of rabies in both humans and dogs; how apathy of dog owners can permit rabies to become a community problem; and how concerted community action can prevent rabies.

The film is available free on loan from the Communicable Disease Center, or can be purchased.



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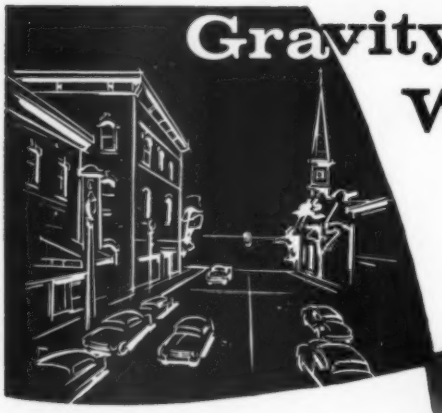

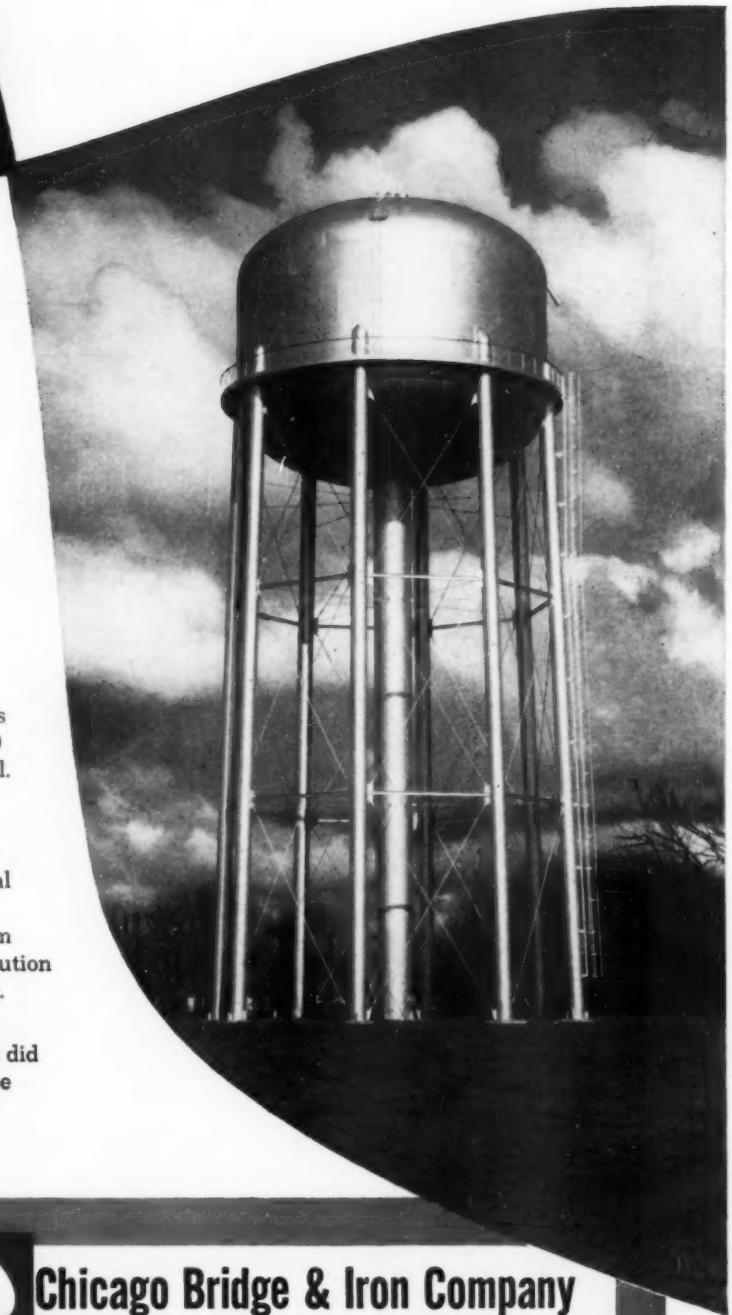

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Good Detective Work Solves Well Pollution Mystery

GRANDVILLE, Mich., recently experienced a well-pollution problem that illustrates the necessity of giving deliberate attention to what might seem a minute detail in water-works construction.

The city has, as part of its water supply source, two wells located on the flats adjacent to the Grand River. The wells were elevated and earth fill placed around them to prevent contamination from surface water during river flood stages. Such a source of pollution was entirely possible, for the well logs were predominantly sand and gravel.

A laboratory examination made on June 14 showed excessive quantities of hexavalent chromium in one of the wells. This particular well was not being pumped to the system at that particular time.

A chrome pollution problem had occurred with the well once before. The only clue to the cause seemed to be that the river had been at flood stage shortly before the tests were made and the chrome was believed to have come from the river. While checking all possible causes of the pollution, Cal DeBoer, superintendent of public works, found that the fill itself contained quantities of chromium. A visual examination and laboratory confirmation showed that the fill did contain chromium.

The city took immediate steps to remove the entire fill and replace it with suitable material.

In this case, the pollution was caused by chromium in the fill. A similar problem could easily occur with some other type of pollution. Of considerable importance was Cal DeBoer's alertness to the potential problem and his immediate corrective action.

Chrome-Plated Meter for Birmingham, Ala.

EARLIER this year, the Water Works Board of Birmingham, Ala., reported the acquisition of its 100,000th active metered customer. In commemoration of this occasion a chrome-plated meter was prepared which will be permanently displayed in the lobby of the Water Works offices.

A. C. Montgomery, chairman of the Water Works Board pointed out that this major milestone was reached on the fifth anniversary of the city's acquisition of the water-works system. This system is distinct and separate from an industrial water system owned and operated directly by the city.

It took 55 years to reach the 50,000 mark, 22 years to gain another 25,000 metered customers, and only seven years to pick up the last 25,000 customers needed to reach the 100,000 mark. Should the rate of growth continue to increase as it has in the past, it will take considerably less than 84 years to reach the next milestone of 200,000 customers of the Water Works Board.

This chrome-plated meter is to be permanently displayed in the lobby of the Water Works offices in Birmingham, Ala.

Besides Chairman Montgomery, the Board is made up of M. E. Pratt and C. Van den Berg, directors, and C. E. Armstrong, secretary. H. L. Shiflett is general manager, and E. Clinton Smith, assistant general manager of the system.

Water Crisis Still a Reality

ALTHOUGH the heavy rains in recent months filled municipal reservoirs in many parts of the country, they have not put an end to America's developing water crisis. This was the general warning recently issued by Edwin J. Schwanhausser, president of Worthington Corporation.

Population and industrial expansion has put a fearful strain on municipal water supplies. Thousands of cities are only partially equipped to satisfy the demand.

The per capita use of water is constantly growing, and at the same time we are faced with a diminishing supply. Water tables across the country are going down all the time. Some sections have already reached the danger point. Many parts of Texas, Oklahoma, the great basin of Utah, and certain sections of the plain states and western states are close to the water shortage borderline. Many municipalities in the eastern seaboard area have employed emergency measures during the dry summer months for several years.

But all is not hopeless. According to Mr. Schwanhausser, there are two solutions to the water problem. One is to pump potable water from where it is to where it isn't; the other is the recovery and purification of waste water that has already been used.

These methods are in use. For example, at Tracy, Calif., giant Worthington pumps lift the equivalent of a river 250 feet wide and 75 feet deep to a height of 200 feet and empty it into a canal to furnish life-giving water 120 miles south. Sewage disposal and water reclamation and purification plants have proved their value in solving the water problems of many cities.

Within the next decade, definite measures must be taken to conserve our vital water resources. In the meantime, Mr. Schwanhausser urges all local groups, to back up efforts of the water commissioners and their engineers to solve their water supply problems.

Refuse Collection & Disposal

The Trouble with Floor-Dump Incinerators

THE trouble with incinerators that are charged directly from the floor and not from a storage pit is that the operators have no good place to put the refuse during peak-load periods. The only place it can go is on the incinerator floor or on the outside ramp.

This sort of problem faced the operators of the Bayshore incinerator owned by the Town of Islip, N. Y. To feed the overloaded furnaces, the operators use a Caterpillar D2 tractor with a Teale loader.

This tractor-loader comes to the rescue of its overloaded incinerators.

One Truck Keeps Seven Men Busy

SEVEN men and one truck provide refuse-collection services for the 11,500 residents of Ironwood, Mich. Ironwood's 13-yard Gar Wood Load-Packer covers a 5.2 square mile area, picking up all garbage and refuse from the residential area once a week and from the commercial area twice a week. A second truck helps for about two weeks during the holiday season. Routes are usually maintained on schedule; however, severe snow storms do hamper collections to some extent. Ironwood can usually expect from 150 to 180 inches of snow each winter.

The seven-man crew consists of a driver, two men to bring containers from the rear of the homes to the street, two men for dumping, and two men to return the containers. With a smooth working team of this size, the truck is kept on the move most of the time.

All materials are dumped into a ravine approximately 300 feet deep and burned. The dump is located about 2 miles north of the city. Once every three months the Buchanan Laboratories of Duluth, Minn., carefully inspect the dump for rats and vermin and carry out an extermination program if necessary.

Ironwood's refuse-collection program is financed by a two mill tax levy that netted a total of $34,128, for the year 1956.

L. C. WATERSTRAUT
City Manager, Ironwood, Mich.

A 7-man crew keeps Ironwood's lone refuse truck moving. The 13-yard Load-Packer provides weekly service for 11,500 people.

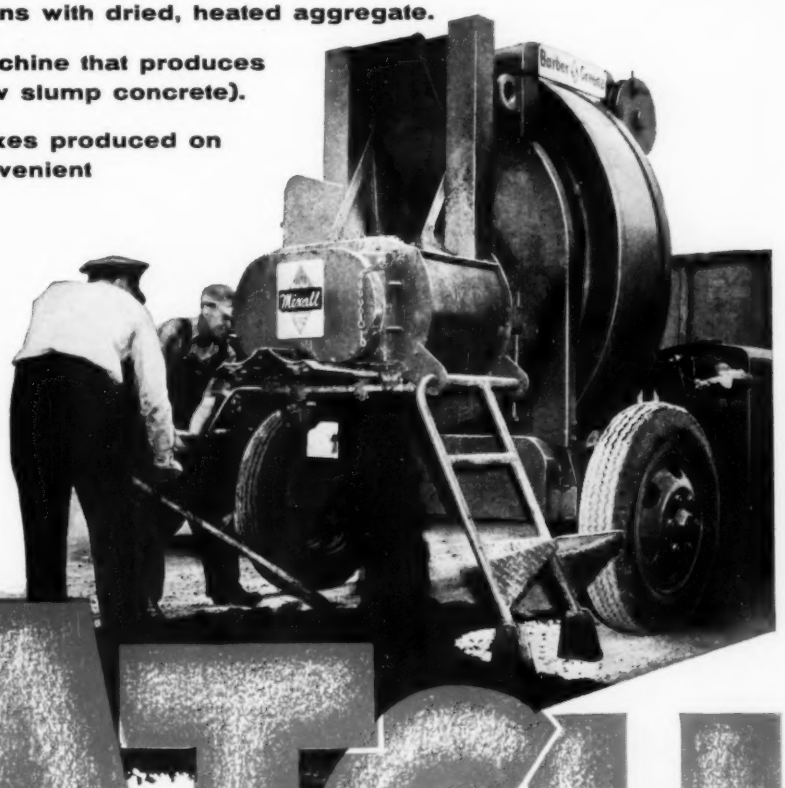
PATCH roads, streets, and runways the most economical way.

PATCH with permanent hot mix.

PATCH in all seasons with dried, heated aggregate.

PATCH with the machine that produces **all** mixes (including low slump concrete).

PATCH with the mixes produced on the job site or in a convenient central location.



Only the Mixall has . . . Rotary-drum dryer . . . Twin-shaft pugmill . . . Drying and mixing, independently controlled . . . Low charging skip . . . High discharge.

PATCH

Let us show you how the Mixall can reduce your costs.

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CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Public Safety

Next Five Years of Fire Truck Purchases

REPORTS from 80 cities, from Kinston, N. C., and Livonia, Michigan, to Cincinnati, Detroit, Los Angeles, New York, and Washington, reveal that one in five, at least, can estimate purchases of fire apparatus five years ahead. The reports were from 3 city managers, 13 purchasing agents, and 64 fire chiefs.

These 80 cities expect to purchase 92 pumping engines and 28 aerial ladders in 1957. The estimates for succeeding years are 44 pumping engines and 29 aerial ladder trucks in 1958; 34 and 22 in 1959; 35 and 17 in 1960; and 34 and 16 in 1961. A changing viewpoint is perhaps indicated by the fact that only 11 quadruples and 2 quintuples are scheduled for purchase. New York City expects to purchase forty-four 750-gpm pumping engines in 1957. These are not included in the figures supplied by the chiefs and city purchasing agents of the 80 cities and tabulated in the accompanying table.

Cities with definite purchasing plans include Denver, Detroit, and Greensboro, N. C. Denver will buy, according to plan, a 1,000-gpm pumping engine and an 85-foot aerial ladder truck each year from 1957 through 1961. Detroit's schedule is two 1,000-gpm pumping engines and two 85-foot aerials in 1957, 1959, and 1961; and 3 engines and 1 aerial in 1958 and in 1960. Greensboro's schedule calls for purchase of a 1,600-gpm pumper in 1958; a 1,250-gallon or a 1,500-gallon pumper in 1957, 1959, and 1961; and a 100-foot aerial and the quad in 1960.

		Number of Units to be Purchased				
		1957	1958	1959	1960	1961
Pumping Engines						
GPM	500	3				
	750	35	8	7	4	4
	1000	33	21	13	16	14
	1250	16	13	14	13	12
Aerial Trucks						
Feet	100	9	8	4	4	4
	65	3	3	2	2	
	85	7	11	10	5	6
	Other	9	7	6	6	6
Combination						
	Quadruple	4	2		2	3
	Quintuple	1				1

Other schedules are: Columbus, Ohio—two 1,000-gpm engines per year for the five years plus two 85-foot aerials in 1957; Buffalo, N. Y.—four or five 1,000-gpm engines and three 1,000-foot aerials each year for the five years surveyed. The Los Angeles Fire Department is expanding in step with the growth of the city and has scheduled twelve 1,250-gpm pumping engines a year for the next five years and 10 aerial trucks per year.

Exclusive of New York, the foregoing is a rough average of three pumping engines and 1.4 aerial trucks to be purchased in the next five years for each city.

Anchorage, Alaska, Police Studied

AS a result of a two-month study of the Anchorage Police Department, Lt. John A. Lindquist, Berkeley (Calif.) police expert, has recommended for the Anchorage department a training program, a traffic enforcement plan, and a juvenile bureau. Shortcomings of the department were ascribed largely as the result of enormous and fast growth. Action on the report rests with Police Chief John Flanigan who assumed his new duties at Anchorage on July 15, 1956.

The Anchorage City Council established in July minimum detention facilities for juvenile offenders. Approved was a $4,000 program for altering existing detention facilities to meet with the Alaskan juvenile code. Through territorial legislation passed in 1955, the territory will pay half the cost of alterations. The city must employ a full-time couple to act as jailer and matron, as well as a relief couple to fill in two days weekly.

Policefiremen

INTEGRATION of police and fire departments into a single agency in Oak Park, Mich.—and combining the duties of policemen and firemen—has brought "Oak Park's fire department as close to a resident's home as the nearest patrol car."

Public Safety Officers in cruising patrol cars can be trained to guard homes and businesses against fires as well as against crimes. Cruising firemen (public safety officers) in police patrol cars can often save the valuable minutes that it takes the fire engines to travel from the station to the fire.

The fire department, says the Citizens' Research Council of Michigan, consists of numbers of men waiting at a station with a fire engine for an alarm. These men eat and sleep in the station, as they generally "work" 24-hour shifts. If a fireman can patrol the city in a car between fires, and *work* an 8-hour day, then *all* of his *paid* time is *productive* time. As the trend for shorter and shorter work weeks continues, it becomes increasingly necessary to find something for firemen to do in their waiting and sleeping time.

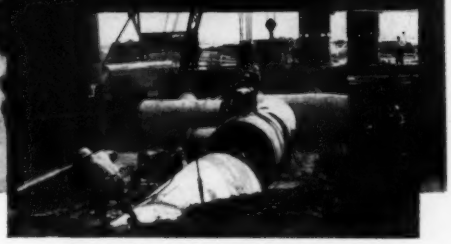
* * *

FIVE OF THE NINE Richmond, Va., pumping engines were built by P. E. Van Pelt, Inc., Oakdale, Calif. They consist of one 1,000-gpm, two 1,250-gpm, one 600-gpm, and one 500-gpm engines. The other three are two Mack and one Ford all 500s. They carry two Scott Air-Paks each. One of the 1,250-gpm engines was installed in 1949; the others were installed in 1942-43.

As the world's tallest and most forbidding mountain peaks have at last succumbed to the determination and initiative of man, so, many of the problems encountered in pipeline installations have been overcome by the versatility of Lock Joint Concrete Pressure Pipe.

Whether it must be installed in swampland, on steep grades, in a maze of underground city utilities or in the limited confines of a plant, Lock Joint Concrete Pressure Pipe can be laid bottle-tight, rapidly and with ease; and the trench can be backfilled immediately to avoid expensive ditch maintenance.

Once laid, its qualities of durability, trouble-free service and permanent high carrying capacity will eliminate the necessity of costly re-excavation for repairs, replacement or cleaning.



Installing 78-inch Lock Joint Prestressed Embedded Cylinder Pipe for cooling system of new Tidewater oil refinery.

36-inch Lock Joint Reinforced Concrete Cylinder Pipe was installed through Florida swampland.

LOCK JOINT PIPE CO.

East Orange, New Jersey

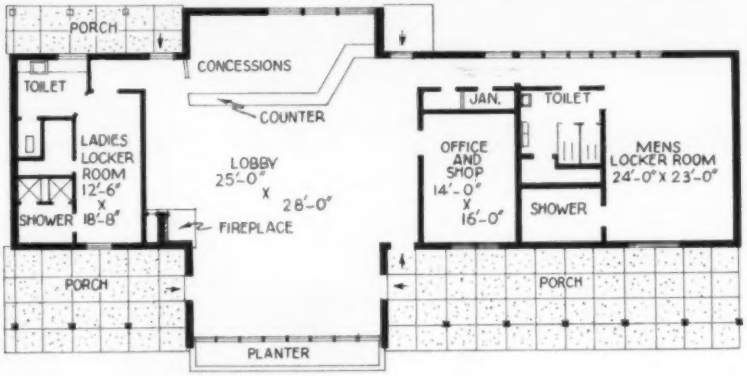
Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo.

Pressure • Water • Sewer • **REINFORCED CONCRETE PIPE** • Culvert • Subaqueous

Picture window of club house overlooks first and tenth tees of Fort Wayne's municipal golf course, while long porches provide shaded seating during warm months.

Fort Wayne's Municipal Golf Club House

By HARRY S. GRABNER
Assistant Superintendent of Recreation
Fort Wayne, Ind.



GOLFERS at the municipal course located at Foster Park in Fort Wayne, Ind., have been patient while waiting for a new club house. In May 1956 their dream of 28 years' standing was finally realized when this new facility was completed.

However, the course has catered to thousands of golfers each year who felt that the course, with its constant improvements, low greens fees, and easy accessibility, was most adequate for their needs in spite of the out-moded temporary club house.

Letting of Contracts

All contracts for the $62,730 building were let to local firms. Architect-Engineer was A. M. Strauss, who received $4,376. General construction work was done by Fred H. Kanning on his bid of $49,933, with a plumbing firm handling its phase for $4,374. The electrical contract was awarded for $4,046. Modern furniture and accessories were purchased from a local department store.

The outside of the building has been graded and completely landscaped by our own Park Department. Outside lighting was installed and directed toward the parking lot which lies southeast of the structure and which is designed to accommodate about 200 vehicles.

The low, long, rambling structure with over-all dimensions of 108 feet by 42 feet is of masonry construction with a sloping roof covering an open porch on the west side of the building which serves adequately in the event of inclement or hot weather.

The entire building is electrically heated, which eliminates a boiler room. A public address system has been installed to serve both the interior and exterior of this modern golf club house.

Due to the proximity of a river, which on occasion overflows part of the course, consideration was given to the site of the building which was constructed on an elevation high enough to eliminate the danger of the building being flooded.

Final Plans

The final plans for this building were made after visits had been made to other golf club houses, after consultation with the course's professional, John Sonnenburg, greenskeeper Harry Lamboley, park department personnel, and the architect. We in Fort Wayne feel that now we have a municipal golf club house to serve in a most comfortable manner the citizens of our city who find enjoyment in using this city-owned course.

19 SIGNAL CIRCUITS!

...Eagle controller is wired for tomorrow's traffic

True, you may not need 19 circuits today. But this table shows how you may need them in the not-too-distant future. Then remember that this Eagle EF-20 controller is already wired for 19 circuits. You won't have to have it "rebuilt" or replaced to handle the greater traffic movement of tomorrow.

Any desired Eagle accessories can be added right in the field. Even adjustments and maintenance are easy, as components are either hinged or jack mounted.

This 3-dial controller has cycle length adjustment from 30 to 130 seconds. And each dial is furnished with 3 resets for flexibility in an interconnected system. Send for Bulletin E-20.

POSSIBLE CIRCUITS NEEDED TOMORROW	
3	for green, amber, red
1	for turn arrow
2	for walk, don't walk
6	
×3	for three-movement intersection
18	
+1	for special local condition
19	

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Municipal Division
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Eagle equipment saves lives . . . saves time

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MOLINE, ILLINOIS

Please send Bulletin E-20 on the 19-circuit controller.

NAME AND TITLE

ORGANIZATION

FULL ADDRESS

Informative Catalogs - Yours For The Asking!

To obtain any of the following catalogs, write directly to the manufacturers or use the Post Card on the insert following Page 52.

Patching Blacktop Pavement

380 Simplify all your street patching operations with a Jackson vibratory compactor designed to deliver up to 4,200 two-ton blows per minute. The unit will compact bituminous mixes in 4- to 5-inch layers close to maximum density, at the rate of 1,800 to 2,000-square-feet per hour. It is operated from a Jackson power plant mounted on an auto trailer. Write JACKSON VIBRATORS, INC., LUDINGTON, MICH.

Bind Your Own City Records

381 With the new GBC system you can bind office manuals, legal documents and important city records quickly, easily, and at low cost. A choice of colorful plastic bindings are available for every requirement. For a new *Manual of Modern Plastic and Loose Leaf Binding*, write GENERAL BINDING CORP., DEPT. AC-106, 812 W. BELMONT AVE., CHICAGO 14, ILL.

Low-Cost Aluminum Chain Link Fence

382 Installed in parks, playgrounds, schools and golf courses, aluminum chain link fence won't rust or corrode, looks neat and clean, and never needs painting. For suggested specifications for All-Aluminum chain link fencing, write the REYNOLDS METALS CO., P. O. BOX 1800-NT, LOUISVILLE 1, KY.

Combination Digger, Shovel and Crane

383 Easily mounted on any 1½-ton truck or larger, the hydraulic Hopto may be operated as a digger, shovel or crane, increasing its usefulness on a variety of municipal applications. The unit has a 16½-inch reach at ground level beyond the boom mounting; digs more than 11 feet deep; and dumps at 9½ feet with a backhoe and at 11 feet with a shovel bucket. Get full facts from the BADGER MACHINE CO., 1124 W. 5TH ST., DEPT. D., WINONA, MINN.

Instant Photocopies

384 Now you can get instant photocopies of anything written, printed, typed, drawn or photographed with the Apeco Dial-A-Matic Auto-Stat, a portable photocopy machine with automatic copy control. All you do is turn a dial, and the machine will copy any original up to 15 inches wide, on one or both sides. This simple procedure is described in a new booklet, available free from AMERICAN PHOTOCOPY EQUIPMENT CO., 1920 W. PETERSON AVE., DEPT. AC-116, CHICAGO 26, ILL.

One Tractor Does Many City Jobs

385 A Ford tractor equipped with a backhoe is a fast, efficient rig for digging service line trenches, bell holes and utility connections. You can use the same tractor with a front-mounted hydraulic angle dozer to backfill, doze and grade. Equipped with a Ford "Step-On" loader, the tractor will lift and load up to 1,000 pounds at the touch of a lever. Write TRACTOR AND IMPLEMENT DIV., FORD MOTOR CO., BIRMINGHAM, ALA.

Better Snow Removal for Airports, Highways

386 The Frink Taper Blade Roll-Over Sno-Plow combines the advantages of a reversible blade type plow with the higher speed, deeper snow handling qualities of a one-way plow. The unit throws and spreads the snow, yet can be hydraulically rotated from left to right-hand plowing position in 15 seconds. Thus the operator can throw all the snow in any direction. For additional data, write FRINK SNO-PLOWS, CLAYTON, 1000 ISLANDS, N. Y.

Free Water Pump Handbook

387 Water-works officials with questions concerning the operation of vertical turbine pumps can get them answered in this new 72-page book, offered by LAYNE & BOWLER, INC., MEMPHIS 8, TENN. The book discusses methods of selecting deep well centrifugal pumps, centrifugal pumps designed for underground waters, turbine pumps as used for well equipment in small cities, and many other topics.

Badges for Police and Firemen

388 Standard badges for police, fire and other municipal officials are designed for long life and attractive appearance by V. H. BLACKINTON & CO., INC. The new Blackinton Hi-Glo badge never loses its golden color, and features a ruby colored stone set in the eye of an eagle. Illustrations of the Hi-Glo and other badges may be obtained by writing the company at ATTLEBORO FALLS, MASS.

Butterfly Valves

389 How to use Henry Pratt rubber-seat butterfly valves to assure top performance in your water and power plants, is discussed in a new manual from THE HENRY PRATT CO., 222 S. HALSTED ST., CHICAGO 8, ILL. The book is designed to help the engineer select the type of valve his work requires, and to determine the space required for installation. Write for *Catalog B-2*.

Rotary Snow Plow

390 Single-lane loading of windrowed snow is easy when street departments use the Bros Series "A" Sno-Flyr. This powerful rotary snow plow will load a 50-yard truck in less than 30 seconds or, where convenient, will toss tons of snow up to 50 feet away. It is easily mounted on industrial type tractor loaders, graders and jeeps. Write THE WM. BROS BOILER & MFG. CO., 1057 TENTH AVE. S.E., MINNEAPOLIS 14, MINN.

Light-Weight Sewer Pipe

391 Made of cellulose fibre impregnated with coal-tar pitch, light-weight Bermico sewer pipe is strong, root-proof, and well able to resist the damaging effects of acids and alkalies. The bituminized fibre pipe is furnished in 8-foot lengths for easy installation. Inside diameters range from 2 to 6 inches. Get full details from the BROWN CO., TB-12, 150 CAUSEWAY ST., BOSTON 14, MASS.

Operate Gate Valves Mechanically

392 With Payne Dean equipment you get the time-saving mechanical power needed to operate gate valves and sluice gates economically. Truck-mounted valve operators are available for any size truck and are powered from the truck transmission. Portable operators, from 3 to 7½ hp, feature their own gasoline or electric motors. Write JAMES B. CLOW & SONS, INC., 201-299 N. TALMAN AVE., CHICAGO 80, ILL.

Plastic Pavement Markers

393 Traffic lines last longer when they are made of Plastix permanent-type reflective pavement markers. These plastic markers are available in white, yellow, and red—in strips, squares, rectangles, rolls, and discs — for marking crosswalks, stop lines, center lines, safety zones and parking T's. They are fully described in *Catalog PX-56* from the PRISMO SAFETY CORP., HUNTINGDON, PA.

Corporation Stops for Water and Gas

394 *Catalog P* describes and illustrates a complete line of corporation stops, fittings and valves, including ground key stops, stops and wastes, standard gas stops, and water-works curb stops. For your copy, write THE HAYDENVILLE CO., HAYDENVILLE, MASS.

Better, Low-Cost Sewage Ejection

395 If you want to get rid of complex piping in your sewage treatment plant and, at the same time, eliminate screens, impellers and shredders, install Blackburn-Smith sewage ejectors. These efficient units will lift sewage up to 150 feet at 30 to 300 gpm. For *Bulletin S50*, write BLACKBURN-SMITH MFG. CO., 57 GARDEN ST., HOBOKEN, N. J.

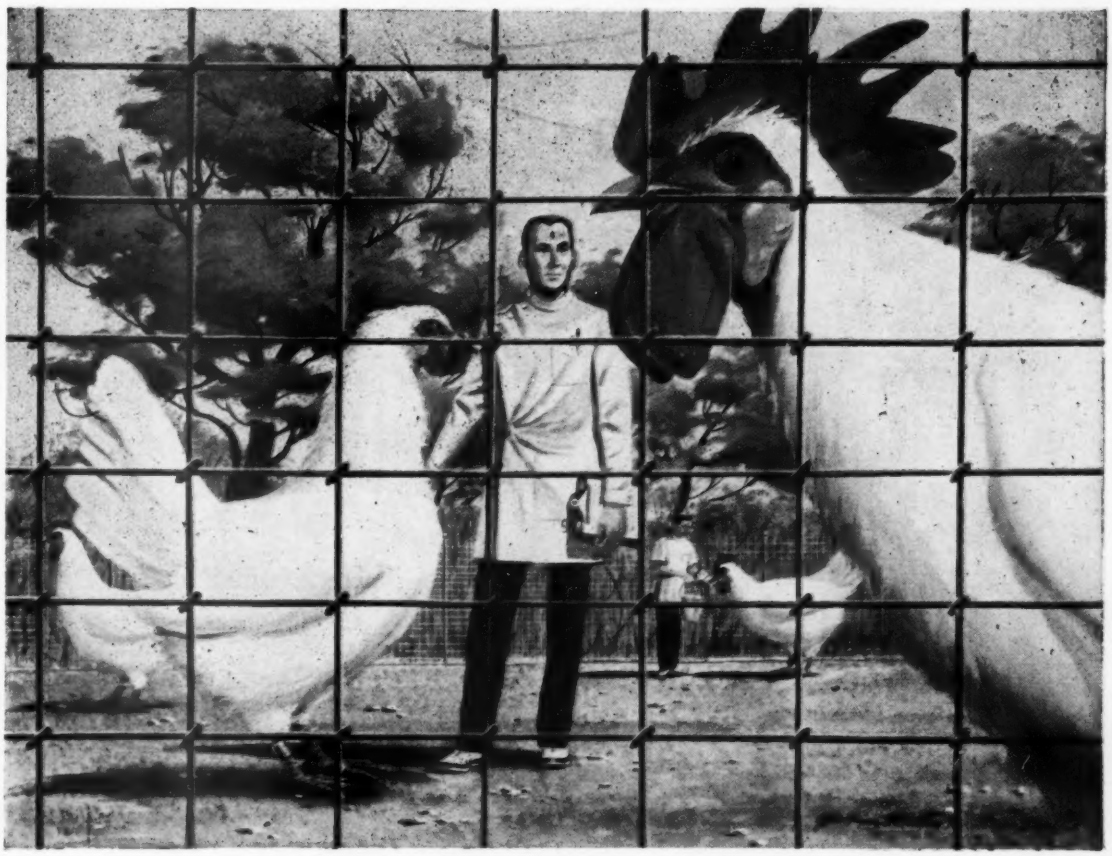
Provides Instant Brush Disposal

396 Instant brush disposal—right on the spot—is assured with a powerful Fitchburg Chipper. These efficient machines operate in any weather, wet or dry, on chip brush, branches, and trimmings. They completely eliminate the nuisance of hauling and burning brush. For a free copy of the new booklet, *Chipper Talk*, write FITCHBURG ENGINEERING CORP., DEPT. AC-116, FITCHBURG, MASS.

Fast Way to Mark Traffic Lines

397 One man operating the new Florline upright marking machine, can make straight, even centerlines, at walking speed, with minimum effort. The machine is easily adjusted to the operator's height, and will mark straight, curved, continuous or skip lines ranging from 2 to 4 inches wide. Two sizes are available, the Upright Regular with a paint capacity of 1½ gallons, and the Upright King-Size with a 5-gallon paint capacity. Write H. C. SWEET CO., 12345 TELEGRAPH RD., DETROIT 39, MICH.

(Please turn to page 32 for more Bulletins)



By changing the character of hormones and genes science may increase tremendously the size of fowl and domestic animals . . . put more meat at less cost on the American table.

100 years from now...

WE MAY RAISE CHICKENS AS BIG AS OSTRICHES!

How will we live, eat, travel in the future? Even scientists must include some guesswork in their predictions of the marvelous things to come. But one thing seems certain—water and gas will still be carried by the dependable, long-lasting cast iron pipe laid today. Here's proof! More than sixty American cities are still being served by cast iron water and gas mains over a century old. And today's modernized U. S. Pipe...centrifugally cast, quality controlled . . . is even stronger, tougher, and more durable.

U. S. Pipe is proud to be one of the leaders in a forward-looking industry whose service to the world is measured in centuries.

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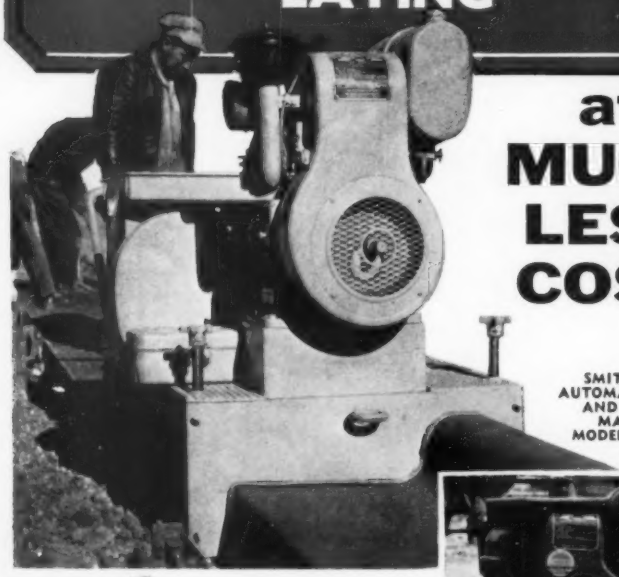
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

U. S. PIPE AND FOUNDRY COMPANY, General Office: Birmingham 2, Alabama

A WHOLLY INTEGRATED PRODUCER FROM MINES AND BLAST FURNACES TO FINISHED PIPE.

Faster BETTER CURB AND GUTTER LAYING at MUCH LESS COST



SMITH-FIELD AUTOMATIC CURB AND GUTTER MACHINE MODEL MARK 3

STEPHENS-CANFIELD AUTOMATIC CURBER MODEL 55A

STEPHENS-CANFIELD AUTOMATIC OFFSET CURBER MODEL 56-W

Save TIME, MONEY AND LABOR WITH THIS NEW METHOD

NO HAND FINISHING
NO FORMS

Operating on an entirely new principle by laying curbing and gutter by the extrusion method without forms or hand finishing, the Smith-Field Automatic Curb and Gutter Machine and the Stephens-Canfield Automatic Curbers offer a substantial savings in time, money and labor to the user.

Working equally well with either Asphaltic or Portland Cement concrete, the Smith-Field Automatic Curb and Gutter machine will lay up to 1,000 ft. of integral curb and gutter per day, under efficient methods and the Stephens-Canfield Automatic Curbers, up to 2,500 ft. per day.

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Write for full details and prices

E. L. HARDIN ASSOCIATES, INC.
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PATENT NO. 2,707,422—AND OTHER PATENTS PENDING

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Simplified Chlorination

398 With the new Wallace & Tiernan V-notch Variable-Orifice chlorinators, one injector control starts or stops the unit, one control sets the feed rate, and chlorine gas is turned on and off automatically. These units are shipped ready for operation in any municipal water treatment plant. They are designed by WALLACE & TIERNAN, INC., 25 MAIN ST., BELLEVILLE 9, N. J.

Smooth Trenches Dug Quickly

399 Mounted on a Ford or Ferguson tractor, the Everett Model 60 will dig clean, smooth trenches up to 5 feet deep, as fast as 300 feet per hour. The efficient trenching machine operates from the power takeoff of the tractor, and is raised and lowered by a built-in hydraulic system. It digs close to buildings, curbs and pipe. For additional data, write EARTH EQUIPMENT CORP., DEPT. AC10, 2036 SACRAMENTO ST., LOS ANGELES 21, CALIF.

Scraper and Snow Plow for Year-Round Maintenance

400 This underbody scraper is efficient, economical, year-round equipment for street, alley, and parking lot maintenance, and for removing ice and snow as well. The company also offers an efficient Sno-Plow for fast, easy snow removal. Some 25 models are available, including one-way tripping and V-type Sno-Plows. Write ROOT SPRING SCRAPER CO., 545 W. NORTH ST., KALAMAZOO, MICH.

Do You Use Your Sewage Digester Gas?

401 If so, you'll want to protect the engines and other equipment in your sewage treatment plant from the damaging effects of hydrogen sulphide. Connelly iron sponges will not only eliminate costly sulphur damage, but will improve purification and reduce operating and maintenance costs as well. Write CONNELLY, INC., 3170 S. CALIFORNIA AVE., CHICAGO 8, ILL.

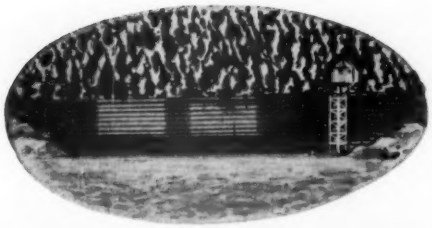
Buckets That Load and Clean

402 The Hayward line of clamshell and orange peel buckets not only covers the full range for municipal digging and handling operations, but includes two buckets designed especially for municipal service. One is the incinerator bucket and grapple. The other is the famous catch-basin bucket so widely used by municipalities. For specific information, write THE HAYWARD CO., 50 CHURCH ST., NEW YORK 7, N. Y.

Plastic Trash Can Has "Lock-Lid" Cover

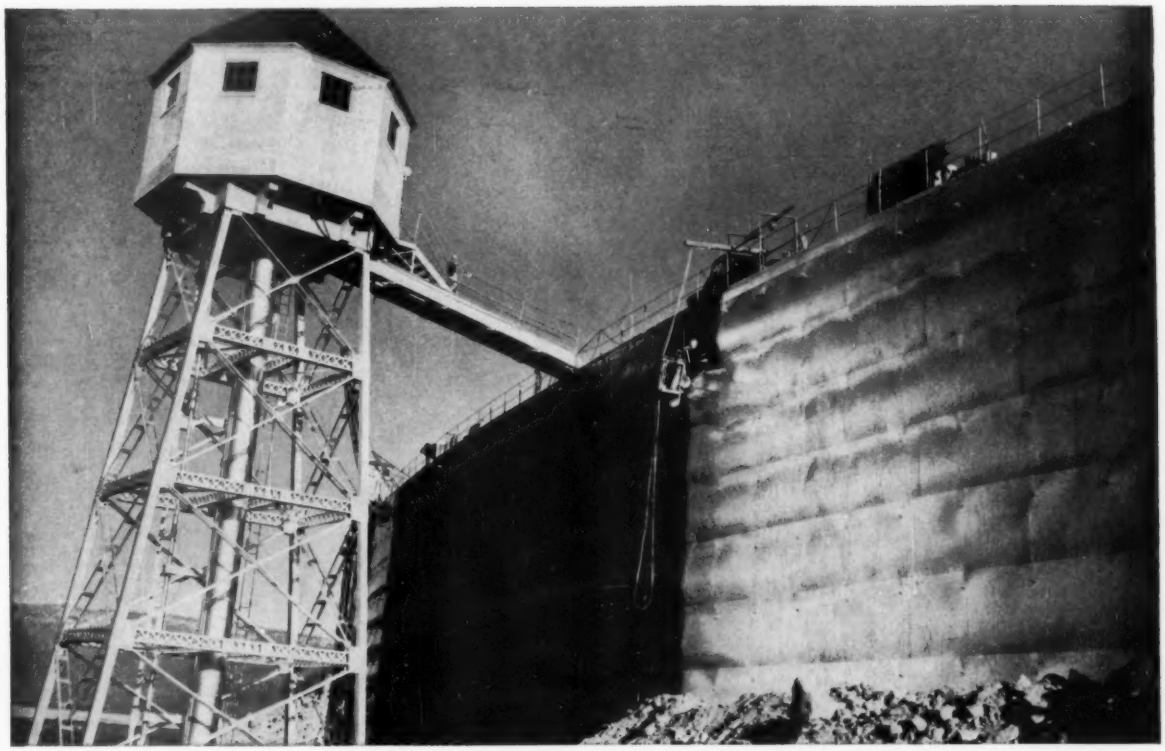
403 LOMA PLASTICS, INC. has designed this 20-gallon trash can with a tight, "lock-lid" cover and 360° "all-around" handles. This sturdy unit can't rust or break, and won't retain odors. It is available in green, red, gray or yellow, and is 27¾ inches high and 20½ inches in diameter. For further information, address the company at 3000 W. PAFFORD ST., FORT WORTH, TEX.

(See p. 34 for more Bulletins)



New TARSET®

selected for Maximum Protection of Big Dam Facing



THE Huntington Lake power dams in Central California have performed yeoman service since their construction in 1917. But 38 winters in the High Sierra is a long time . . . long enough for the annual freezing and thawing cycles to react on the concrete surfaces of the dams' faces. Southern California Edison Company therefore took important maintenance measures last summer.

To provide maximum protection against corrosion, welded steel plates—behind which was poured a six-inch minimum thickness of concrete—were installed on the upstream faces of the two dams. The steel plates were then sandblasted and given a protective coating of Pitt Chem "Tarset," the new coal tar-epoxy resin coating.

Tarset, the toughest, hardest coating of its kind ever developed from coal tar, is being called upon to solve all sorts of corrosion problems formerly classified as "impossible." Tests show that Pitt Chem Tarset can stop corrosion caused by atmospheric exposure . . . sour crude petroleum and petroleum products . . . salts and acids. And it actually becomes harder at temperatures as high as 400°F!

What can Tarset do for you? Outline your corrosion problem—either by phone or letter—and we'll gladly help you solve it.

Send for Descriptive Booklet on TARSET today

Free booklet tells how to use amazing new Tarset to reduce costly corrosion. Gives detailed description of Tarset's specifications, properties and application characteristics. Write for *your* copy today!

WBW 6064

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get your FREE copy of this new booklet

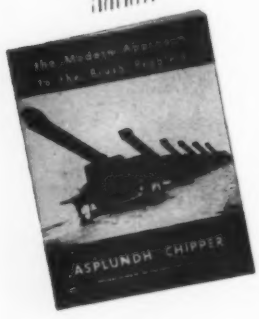
"THE MODERN APPROACH TO THE BRUSH PROBLEM"

It tells how you can—

cut loading and hauling costs
—1 truckload of chips equals at least 4 of brush

eliminate brush burning
—a boost to your public relations

provide chips, a valuable by-product
—use them for mulching, shrub beds, erosion control, walks and cushion material in playground areas.



Demonstration easily arranged at your convenience, without obligation.

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Please send me FREE BOOKLET, *The Modern Approach to the Brush Problem*

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BY ACTUAL TEST THE FASTEST CHIPPER MADE

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Keeps City Streets Ice Free

404 Your truck driver is your entire crew when you use the new Seaman-Andwall tail-gate spreader for winter ice control. The Century spreader will handle salt, sand, calcium chloride, slag or any granular abrasive. It provides a spreading width up to 40 feet, and features finger-tip hydraulic controls. For *Bulletin SA-C-656*, write SEAMAN-ANDWALL CORP., DEPT. R-242, MILWAUKEE 1, WIS.

Simplifies Parking Meter Collections

405 Cities can provide vault-like protection to parking meter receipts with Duncan-Miller's Model "60" One Sealed Box collection system. This simple, sturdy box assures convenient, rapid collections with maximum security. For full information on Duncan-Miller Model "60" parking meters, write the DUNCAN PARKING METER CORP., 835 W. WOOD ST., CHICAGO 22, ILL.

Better Water and Sewage Filtration

406 Used in water and sewage treatment plants, the Glenfield Microstrainer is automatically and continuously operated under open gravity conditions with small head losses. The unit features a filtering medium of closely woven, stainless steel threads, providing apertures down to about 23 microns across. These retain all but the finest suspended matter. Get full details from GLENFIELD & KENNEDY, INC., 706 FIFTH AVE., NEW YORK 22, N. Y.

Electric Parking Gates

407 The costly services of parking attendants aren't needed when you install WRRS gates in your city's parking lots. These gates operate with remote controls, using coins, tokens, keys, or any combination of these methods. They are safe, easy to operate, and are designed for up to 30 years of dependable service. Write WESTERN RAILROAD SUPPLY CO., 2430 SOUTH ASHLAND AVE., CHICAGO 8, ILL.

Bituminous Distributor

408 City street, airport, and highway construction projects are easy with a Rosco front-mounted distributor, an efficient unit that handles all grades of road oils, asphalt, cutback, tar and emulsions. Application pressure and volume are maintained automatically with the new distributor, and all operating controls are located at the rear "safety" platform. For full information on the Model RQE, write ROSCO MFG. CO., 3118 SNELLING AVE., MINNEAPOLIS 6, MINN.

Trucks for Every Municipal Application

409 Assure top performance from your city's pickup trucks, dump trucks and refuse collection trucks, by specifying a dependable Chevrolet chassis. Chevy's light- and medium-duty trucks have been redesigned for '57 with Ball-Gear steering, a high-output 12-volt electrical system, and tubeless tires. For complete information, write CHEVROLET DIV., GENERAL MOTORS, DETROIT 2, MICH.

(See p. 40 for more Bulletins)

COAGULANT FACTORS—

1
2
3
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Ferri-Floc gives smoother, more efficient and trouble free operation. Whatever your particular water treatment problem may be, you can depend on Ferri-Floc doing a superior job and doing it efficiently and economically—Ferri-Floc is a free flowing granular salt which can be fed with few modifications through any standard dry feed equipment. It is only mildly hygroscopic, thereby permitting easy handling as well as storage in closed hoppers over long periods of time.

WATER TREATMENT

Efficient coagulation of surface or well water. Effective in lime soda-ash softening. Adaptable to treatment of all industrial applications.

SEWAGE TREATMENT

Ferri-Floc coagulates wastes over wide pH ranges — It provides efficient operation regardless of rapid variations of raw sewage — Is effective for conditioning sludge prior to vacuum filtration or drying on sand beds.

FREE BOOKLET

Let us send you without charge, a 38 page booklet that deals specifically with all phases of coagulation — just send us a postal card.

LIQUID SULFUR DIOXIDE

HIGHEST QUALITY

SO_2

As an antichlor SO_2 has proven to be very effective in controlling accurately the amount of residual chlorine in water supplied to the distribution system.

The quantity of SO_2 needed to remove chlorine is in the ratio of 0.905 parts of SO_2 for each part of chlorine to be removed or reduced.

For plants operating under conditions where control is difficult, superchlorination and dechlorination with SO_2 is more practical than the "break-point" treatment.

Available in: Cylinders, Ton Drums, Tank Trucks and Tank Cars

COPPER SULFATE

Long recognized as essential to properly control algae, and other microscopic organisms. Copper Sulfate will control about 90% of the micro-organisms normally encountered in water treatment plants more economically than any other chemical.

AVAILABLE IN 100 POUND BAGS.

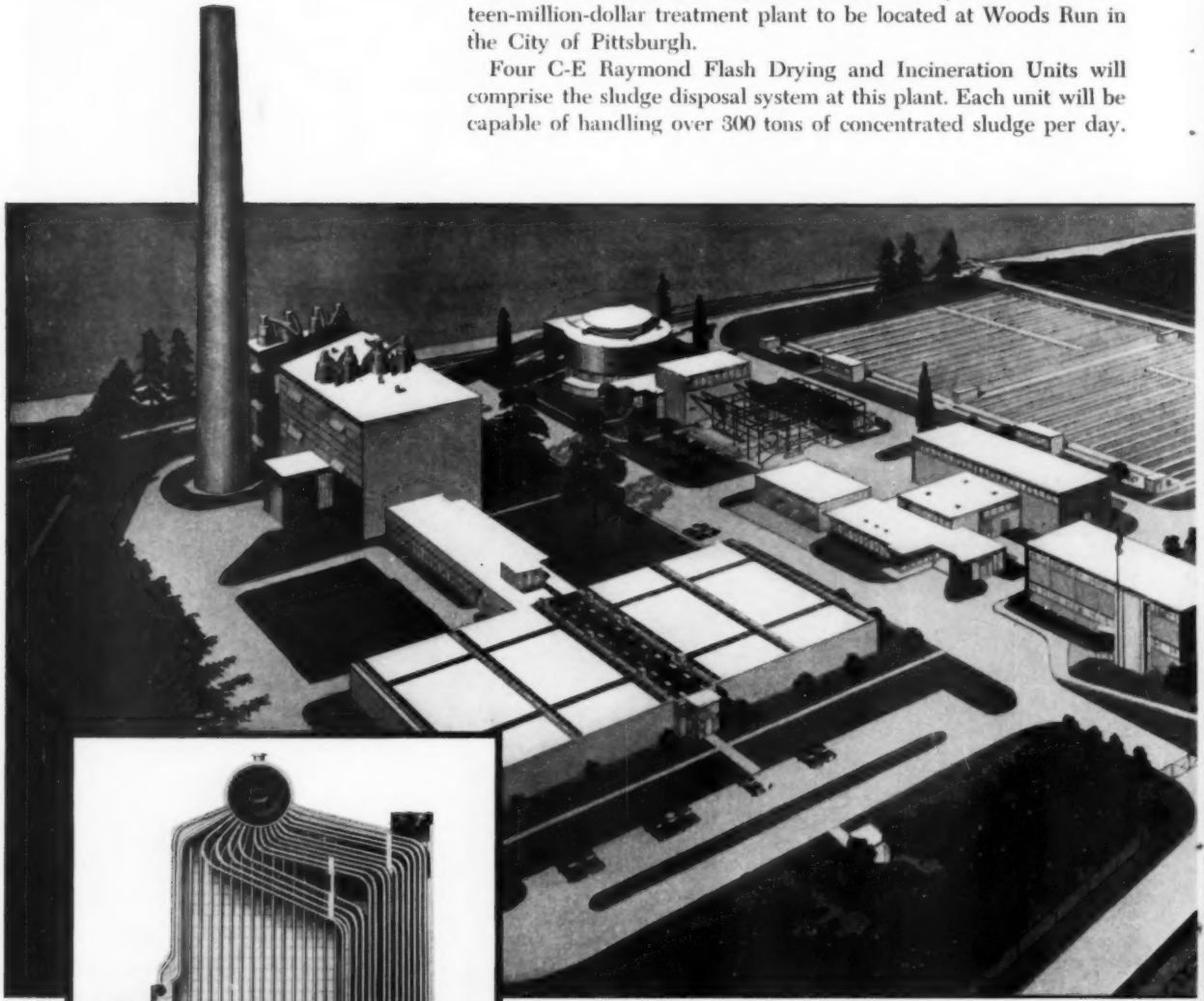
TENNESSEE CORPORATION

617-29 Grant Building, Atlanta, Georgia

Pittsburgh selects for sewage

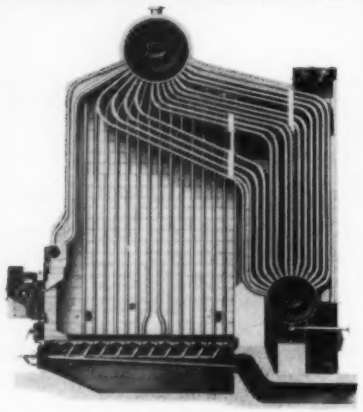
Pittsburgh's projected one-hundred-million-dollar sewage treatment system will serve a total of seventy communities having an equivalent population of 1,500,000. More than sixty-three miles of new sewers will be laid to feed raw sewage to the hub of the system – the seventeen-million-dollar treatment plant to be located at Woods Run in the City of Pittsburgh.

Four C-E Raymond Flash Drying and Incineration Units will comprise the sludge disposal system at this plant. Each unit will be capable of handling over 300 tons of concentrated sludge per day.



The Pittsburgh Disposal Plant
J. F. Laboon, *Executive Director and Chief Engineer*
Metcalf and Eddy, *Consulting Engineers*

Incoming sewage will be pumped to the screens and aerated grit chambers and thence flow to the preaeration and settling tanks at far right. The solids will be pumped to the sludge concentration tanks (left foreground) where they will remain for five days. From there the sludge will be pumped to the incinerator building (left background) where it will be dried and burned. The incinerator building will also contain the two C-E boilers.



Two C-E spreader stoker-fired boilers, Type VU-10, will provide the steam used to heat sludge in the concentration tanks, and to heat the plant.

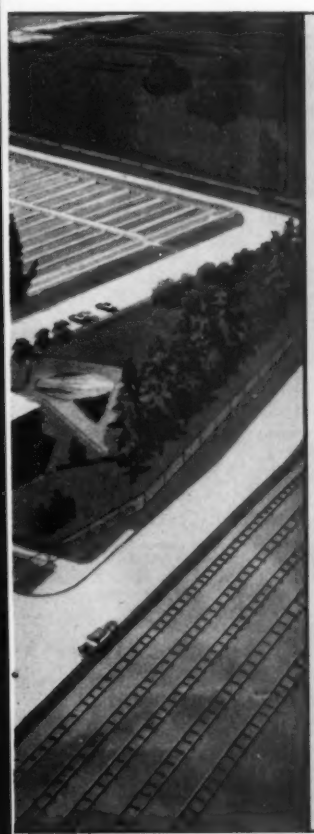
C-E Raymond

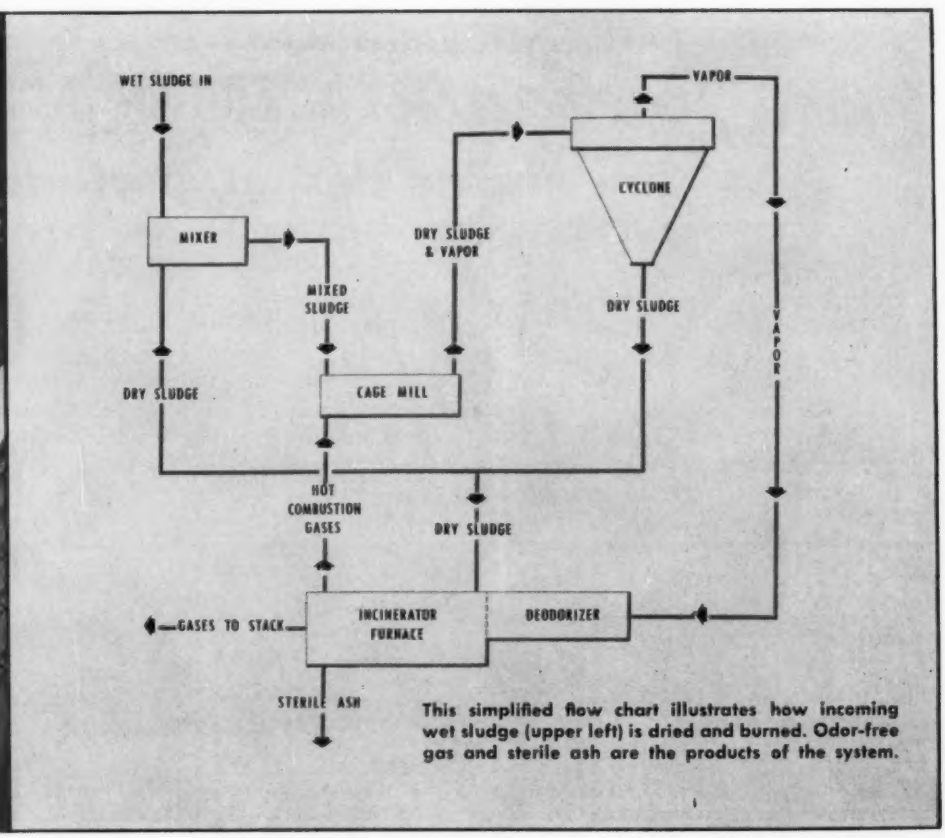
sludge incineration

The sludge will have a moisture content of 82% and each C-E Flash Drying and Incineration Unit will be capable of burning more than 55 tons of dry solids per day while evaporating more than 250 tons of water. Each C-E Raymond Unit will be equipped with a Deodorizing System which will free the moisture-laden combustion gases of objectionable odors. In addition, each of the four incineration systems will incorporate equipment for the control of fly ash.

Throughout the country, the C-E Raymond Flash Drying and Incineration System is achieving an ever-wider measure of popularity. In fact, *more filter cake is dried and/or burned by the C-E Raymond System than by all other systems combined.*

If you are considering new sewage treatment facilities, investigate *the modern method* of sludge disposal. C-E Raymond specialists will be happy to work with you and with your consultants. No obligation, of course.





This simplified flow chart illustrates how incoming wet sludge (upper left) is dried and burned. Odor-free gas and sterile ash are the products of the system.

COMBUSTION ENGINEERING

RAYMOND DIVISION

1315 North Branch Street, Chicago 22, Illinois

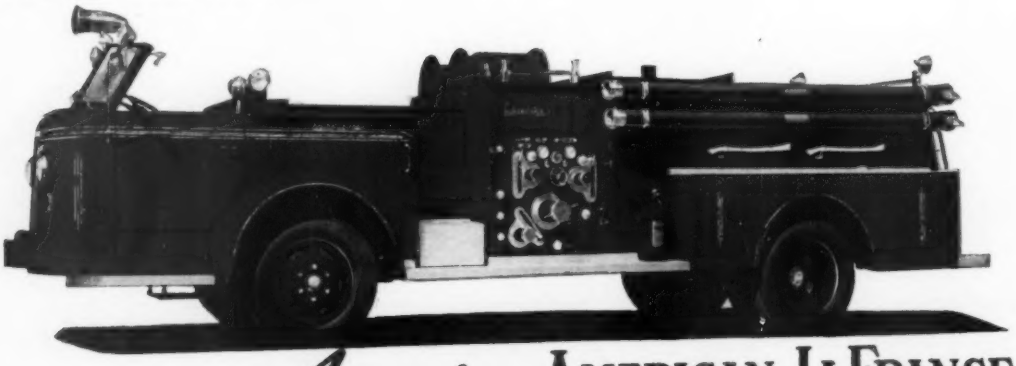
B-934

Eastern Office: 200 Madison Avenue, New York 16, N. Y. • *Western Office:* 510 West Sixth Street, Los Angeles 14, California

ALSO FLASH DRYING AND INCINERATION SYSTEMS FOR INDUSTRIAL WASTE DISPOSAL

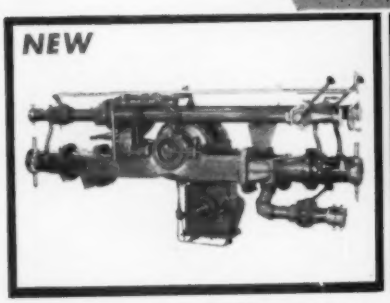
The NEW . . ALL NEW "Series 800"

The Custom . . .

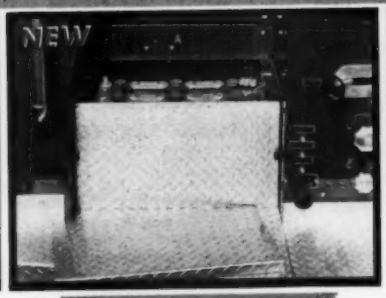


Again AMERICAN LaFRANCE
fire engine design, performance

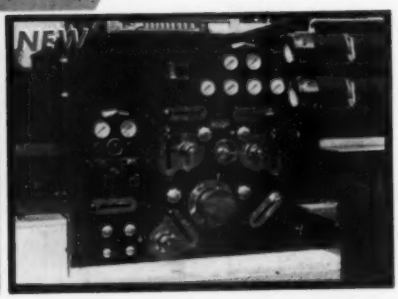
The new American LaFrance 800 Series Fire Engines are new from front bumper to rear step. The Cab-Ahead-of-Engine design has proven best for safety and driver's visibility through eight years of fire service. The chassis is completely new with heavier frame, longer springs and direct acting shock absorbers. Short turning radius and easy steering are important features in the new design. Utility, always important, is increased by greater hose capacity of the 73 inch wide body, and the addition of seven enclosed compartments and two open compartments to protect all the equipment. The standard water tank has been increased to 300 gallons (U.S.) capacity.



New parallel-series TWINFLOW centrifugal pump, more water per engine horsepower, longer service life with decreased maintenance. All controls positive operation. Gated suction inlet optional on specification.



New battery location away from engine heat; short leads for high voltage; accessible for inspection and testing; 12 volt heavy duty 150 amp. hour battery for all electrical requirements.



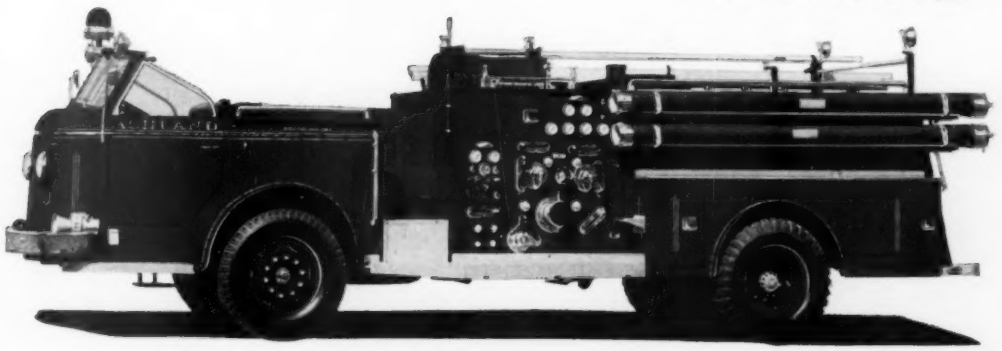
All gauges, valves and pump controls grouped for best operation; properly identified with permanent plates and protected from freezing. Extra gauges and gates shown are optional equipment as specified.

See one of these new American LaFrance "800 Series" Fire Engines in Space A and get complete details in our booth No. 62 at the I.A.F.C. Convention in Miami, November 12, 13, 14, 15.

AMERICAN LAFRANCE

FIRE ENGINES

The Deluxe...

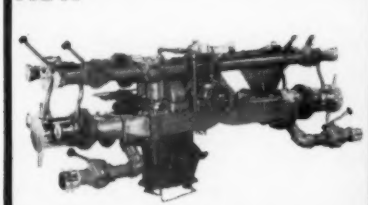


sets a new high standard in and utility . . .

The American LaFrance high standards of quality in materials, design and workmanship characterize the new 800 Series Fire Engines. Every model, either Custom or Deluxe, is identical in chassis construction. The Deluxe differs only in finish (lacquer), style of trim, compartment detail and bronze pump housing.

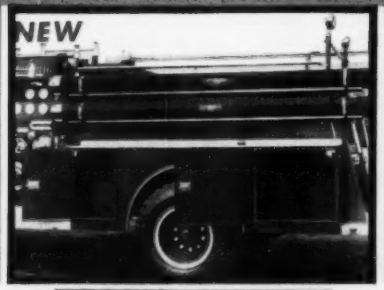
Seven engines provide a complete range of power selection for top performance under all service conditions. Two engines are V-12 and five engines are 6 cylinder. The new TWINFLOW pump is available in all standard N.B.F.U. Class A capacity ratings and is now proving its high performance ability in fire service use. Higher pressure performance up to 600 p.s.i. pressure is provided on specification.

NEW



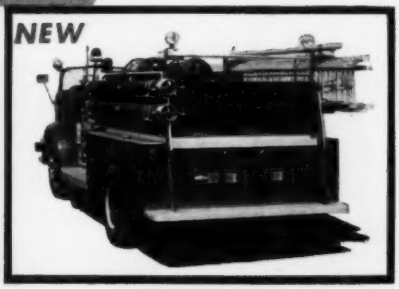
TWINFLOW pump has optional controls from right or left side of apparatus. All discharge gates controlled from operator's panel. All lubrication from operator's panel. Gated suction inlets optional on specification.

NEW



Four large enclosed side compartments for masks, inhalators and other equipment requiring weather protection. Deluxe specifications include waterproof doors with lights in compartments controlled by door operated switches.

NEW



Two large enclosed compartments provided at rear. Each compartment adequate for portable generator, portable pump or other equipment. Center compartment enclosure and rear discharge outlets shown are optional.

AMERICAN LAFRANCE CORPORATION

ELMIRA, NEW YORK, U. S. A.

LAFRANCE FIRE ENGINE—FOAMITE LIMITED

TORONTO, 9, ONTARIO, CANADA

Self-propelled BANTAM cuts trenching time in HALF

for City of Jackson, Michigan Water Dept.

"easily completes 8-9 service installations a day!"

Says Water Works Supt. Joe Rogevin

Water Works Superintendent Joe Rogevin of the fast-growing city of Jackson, Michigan, has this to say about their new BANTAM Self-Propelled Model CR-35:

on speed! "In a single 8-hour working day! Our BANTAM can easily complete 8-9 service installations 33′ long x 9′ deep in one working day in a 3-block area—including travel time from the water department . . . job-to-job moves . . . and return travel.

on costs! "With the one-man operation of the CR-35, we cut our trenching time in half over previous methods—with no lost time for repositioning moves.

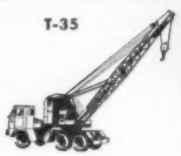
on versatility! "BANTAM is used for digging of service lines from houses to main lines . . . for maintenance at water plant . . . setting power poles—for virtually every municipal lifting and digging job."

on ideal size! BANTAM is just the thing for municipal operations, according to Mr. Rogevin—giving these additional advantages: "It has 'just right' travel speed . . . the handy size for traveling busy city streets and working in tight spots. We pull right up to the curb, park parallel and complete trenching jobs for most service installations without leaving the street . . . without tying up traffic."

The new, versatile BANTAM Self-Propelled is the most productive traveling one-man rig at the lowest price in its class. Lifts up to 12,000 lbs. . . . digs up to 100 cu. yds. per hour. Write for complete details.

TRY THIS MONEY-, TIME-SAVING BANTAM — SEE YOUR BANTAM DISTRIBUTOR!

T-35



C-35

SCHIELD Bantam Co.

234 Park Street AC-94
Waverly, Iowa, U.S.A.

Send illustrated BANTAM Self-Propelled folder. Also details on
☐ Carrier Mounted ☐ Crawler Mounted

Name.....

Position.....

Company.....

Address.....

City.....State.....

WORLD'S LARGEST PRODUCER OF TRUCK CRANES AND EXCAVATORS

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Street Signs—Traffic Signs

410 Whatever your city's traffic needs—street-name signs, traffic cones, traffic paint or line marking machines—you can meet them quickly and economically with Sargent-Sowell equipment. For a 50-page catalog describing plain and reflectorized signs and other traffic control equipment, write SARGENT-SOWELL, P. O. BOX 1176, GRAND PRAIRIE, TEX.

Valves and Hydrants

411 Fast, easy installation and extra tight joints are assured when your city specifies Darling mechanical joint valves and hydrants. The company's B-50-B packless dry-top hydrant features ball-bearing operation and "O" ring seals. Its gate valves operate on a fully revolving double disc, parallel seat principle for long life, and low maintenance. Write DARLING VALVE & MFG. CO., WILLIAMSPORT 10, PA.

Fences and Gates

412 Make sure your city's parks, playgrounds, swimming pools, lawns and other properties receive adequate protection by installing fences and gates made by the ANCHOR FENCE DIVISION, ANCHOR POST PRODUCTS, INC., 6910 EASTERN AVE., BALTIMORE 24, MD. Anchor fence is available for light, medium and heavy-duty requirements. It provides maximum protection at minimum cost.

No Spoiled Ballots

413 Every vote is counted when your community relies on Automatic Voting Machines to do the job. Too, these accurate machines completely eliminate the many errors connected with paper ballots. For detailed information on the speed and efficiency of automatic voting, write AUTOMATIC VOTING MACHINE CORP., JAMESTOWN, N. Y.

Surveying Instruments

414 City engineers and surveyors are offered a dependable line of instruments designed for fast, easy operation, accuracy and economy. The full line, including the DKMI Ten Second Theodolite and the Centering Tripod, are described in Brochure DK 518-10. Write KERN INSTRUMENTS, INC., 120 GRAND ST., WHITE PLAINS, N. Y.

All-'Round Deodorizing

415 Economical discs for deodorizing public urinals, bowls and garbage pails are offered by THE C. B. DOLGE CO., WESTPORT, CONN. Deodoroma Rounds cost only a fraction of a cent a day to use, and are dense and durable. Their efficiency lasts until the last particle has vaporized. Details on request.

Cast-Iron Pipe in Longer Lengths

416 It's fast and easy to install dependable water lines when you're working with 20-foot lengths of McWane cast-iron pipe. McWane pipe is available in inside diameters of 2 and 2¼ inches, and may be furnished with mechanical joint or bell-and-spigot fittings. Get full details from the McWANE CAST IRON PIPE CO., BIRMINGHAM, ALA.

(See p. 44 for more Bulletins)

That's how quickly collections are made with • • •

NEW MI-CO COIN COLLECTION SYSTEM

MICHAELS PRODUCTS:

Louvers
Letters
Spandrels (cast & extruded)
Name Plates
Honor Rolls
Check Desks
Vault Grilles
Calendar Racks
Tablets & Signs
Church Work (special)
Bronze Inurnment Urns
Astragals (adjustable)
Store Fronts (special)
Bronze Vases (cemetery)
Memorial & Grave Markers
Vertical Pivoted Windows
Railings (balcony, counter & stair)
Architectural Curtain Walls
Doors (entrance & mausoleum)
"Time-Tight" Trophy Cases
MI-CO Parking Meters

Coins drop through collector unit into locked coin cart.

Coins do not drop into a funnel which could be blocked, but are guided into cart unseen and untouched by collector.

No keys to turn. No coin receptacles to seal and unseal. No misplaced coin door keys.

Sliding coin door double locked and protected by stainless steel sheathing.

Registered Keyway—your guarantee that key blanks cannot be obtained from local locksmiths.

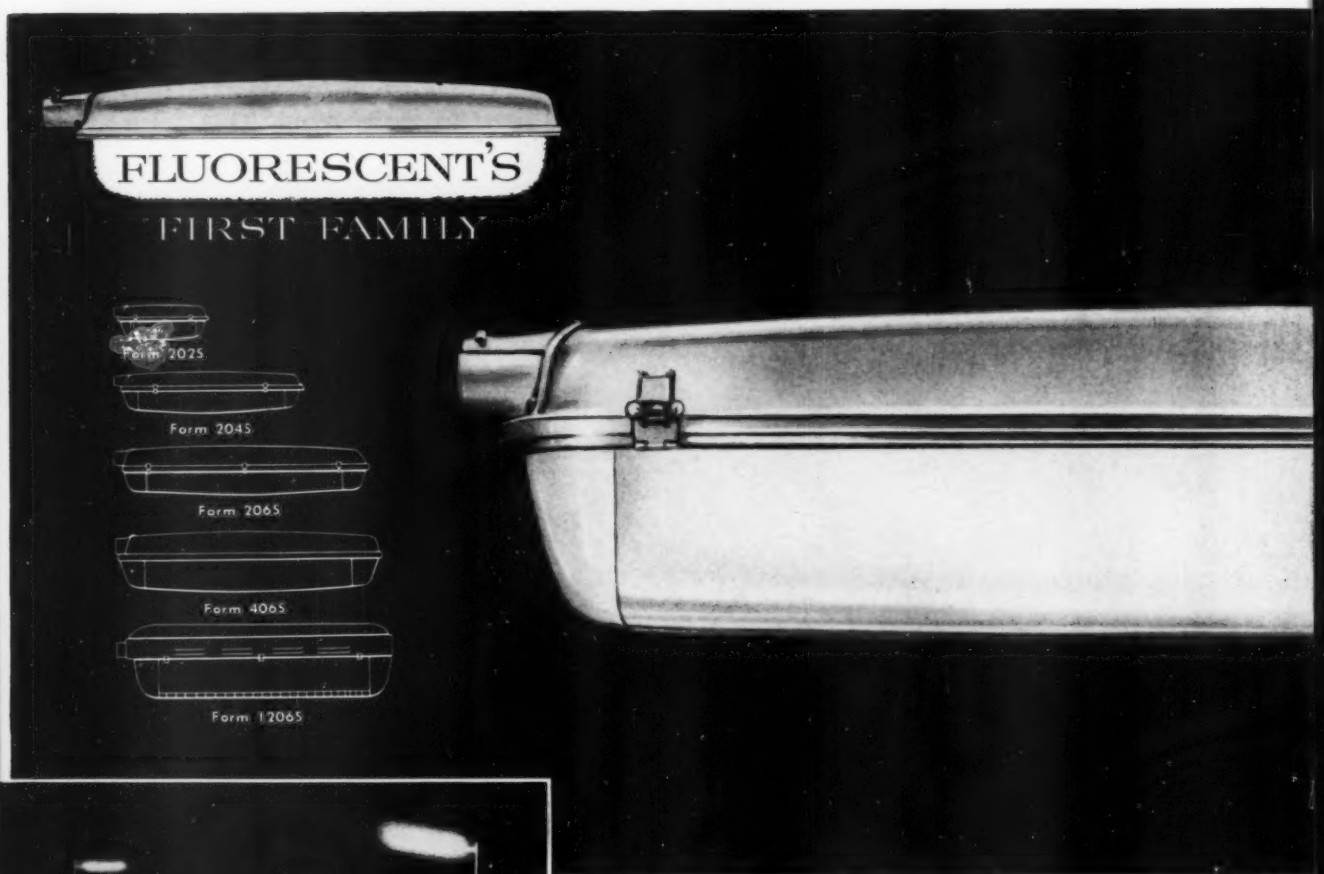
AND . . . it's adaptable to MI-CO Manual Parking Meters already installed.

MI-CO PARKING METERS, P. O. Box 668-A, Covington, Kentucky

(The Michaels Art Bronze Co., Inc.)

New G-E form 206S Fluorescent

improves appearance, visibility, adds safety



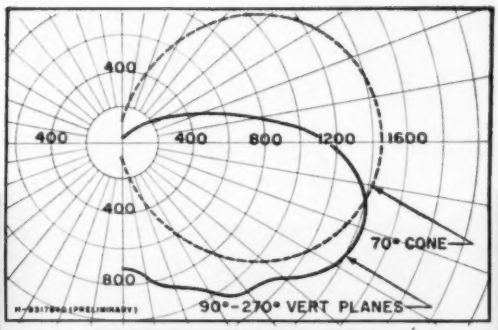
COMFORTABLE SEEING is added to safety in this shopping center. Business is increased because the pleasant atmosphere these G-E Form 206S luminaires create draws people into the area, encourages them to linger and shop, and develops "repeat" trade.

Medium business and shopping areas often are improperly lighted because they are too small to fall into a "main-street" category. Yet these areas get "main-street" type automotive and pedestrian traffic . . . have the same kind of safety and visibility problems. The answer is the new G-E Form 206S Luminaire (10,600 lumens). Easy to install and requiring little maintenance, this luminaire provides crisp, cool, diffused light with virtually no glare. Pavements have exceptional uniformity of brightness—even when wet. Comfortable seeing like this is good for business, too . . . draws people into the area to shop.

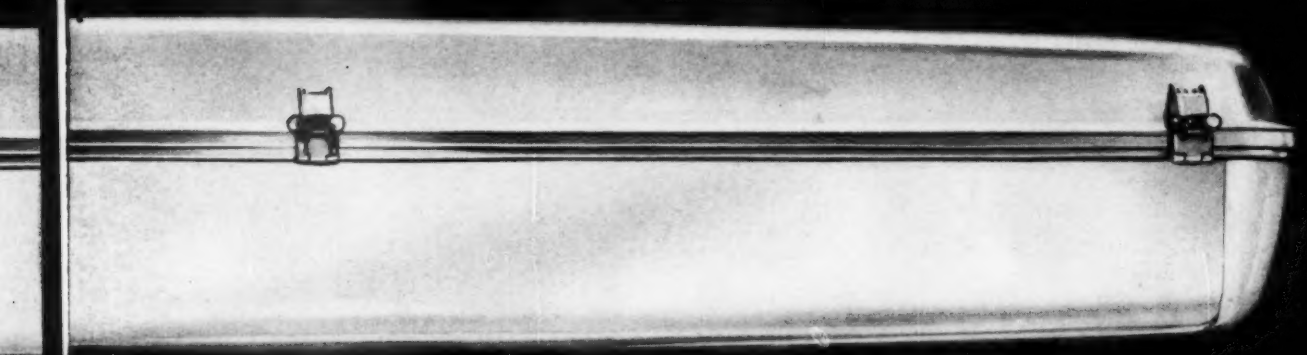
The Form 206S Luminaire is another member of G.E.'s revolutionary family of fluorescents, now making it possible to bring all the advantages of this type of street lighting—better visibility, more comfortable seeing, lower maintenance—to every street in the community. It's a development made possible by a co-ordinated design of luminaires, lamps, ballasts, and brackets for outdoor service. And each member of this family—whether it's the 202S (2700 lumens), 204S (6600 lumens), 206S (10,600 lumens), 406S (21,200 lumens), 1206S (64,000 lumens)—

Luminaire

to primary traffic areas



DISTRIBUTION OF INITIAL CANDLE POWER



contains many new structural design improvements to assure installation, operating and maintenance advantages. Some of these advantages are slipfitter mountings, weather-proof engineering, one-piece side-hinged globe, detachable reflector, pre-wired terminal board, integral ballasts, and new recessed, double-contact-base lamps.

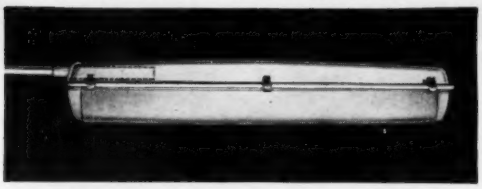
For more information on the outstanding new General Electric Form 206S or any other member of "Fluorescent's First Family," contact your nearest G-E Apparatus Sales Office, or write Section 452-164, General Electric Company, Schenectady 5, New York.

"Out of Darkness," a dramatic 16-mm sound film on how one community met and solved its street-lighting problems, is available from your nearest G-E Apparatus Sales Office.

Progress Is Our Most Important Product

GENERAL ELECTRIC

ONLY NEW G-E FLUORESCENT LUMINAIRES OFFER ALL THESE FEATURES



SLIPFITTER MOUNTING . . . pipe bracket slides easily into luminaire, giving perfect support and eliminating heavy, cumbersome clamp brackets. Simple, self-contained, two-bolt adjustment permits fast, easy leveling.

WEATHERPROOF ENGINEERING... new, resilient gasket material between hood and globe provides a uniform, positive seal against all elements. One-piece plastic globe retains clear appearance in all weather.

how to

CUT CORROSION LOSSES

a report by Koppers Company, Inc.

W. F. Fair, Jr.
Corrosion Consultant

The two most recent reports in this monthly series have stressed the importance of good surface preparation and described methods used to clean metal surfaces prior to the application of protective coating systems. This report describes an experiment, conducted under service conditions, which illustrates striking differences in coating performance due solely to differences in surface preparation.

* * *

In 1952 speculation arose concerning the contribution of wash primer surface conditioners and of inhibitory pigmented primers, when used with coal tar coating systems. Dr. Joseph Bigos of the Steel Structures Painting Council, and editor of the Steel Structures Painting Manual, participated in the discussions, giving freely of his time and experience.

When it was decided to subject certain typical protective coating systems to an environment of known high corrosivity, two areas in the Koppers Coke Plant at Kearny, N. J., were selected. The location of this plant on tide water, fumes and "coke breeze" from adjacent ovens, saline condensation from the coke quenching, and seasonal temperature shocks assured rugged testing conditions.

The areas tested were an actifier tower and three oxide box tops, totaling nearly 5,000 sq. ft. of steel surface. Fourteen coating systems were applied in duplicate 2-foot-wide strips on the vertical actifier tower, after thorough sandblasting. Of the flat box top areas, half were cleaned by sandblasting and half by power wirebrushing, and the same fourteen coatings were applied on both of these differently cleaned areas.

Primers used were a conventional coal tar cutback, three wash primers, two epoxy red leads, two phenolics, four special proprietary formulations, and three experimental coal tar solutions. Barrier coats over primers were Bitumastic® No. 50, Bitumastic Super Service Black, and Bituplastic® No. 28. For comparison, unprimed sections received the same coatings. Bituplastic No. 28 was used to topcoat all areas.

* * *

At the end of only one year, all systems on the wire-brushed areas—both primed and unprimed—had blistered and soon showed universal disbonding. After two years, disbonding and undercutting on these areas had caused complete coating failure. Now, after more than three years, all the coating systems on the sandblasted areas—both primed and unprimed—are in perfect condition and show no signs of deterioration.

In such severe corrosion environments, it is obviously futile to consider any but the best surface preparation. Also, it must be concluded that priming cannot compensate for incomplete metal cleaning.

* * *

Our Technical Department makes semi-annual inspections of this continuing test. We'll be glad to notify you of these inspection tours if you would like to be present. Write Koppers Company, Inc., 1301 Koppers Building, Dept. 103L, Pittsburgh 19, Pa. District Offices: Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward, Ala. In Canada: Koppers Products, Ltd., Toronto, Ontario and Edmonton, Alberta.

KOPPERS

BITUMASTIC
REG. U. S. PAT. OFF.
COATINGS AND ENAMELS

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Diesel, Dual-Fuel and Gas Engines

417 For top performance and dependability in your diesel, dual-fuel and gas engines, specify Chicago Pneumatic units. Efficient CP engines are available in sizes capable of delivering from 120 to 2,280 hp and in normally aspirated or supercharged models. For details on the engine best suited to fill your specific needs, write CHICAGO PNEUMATIC TOOL CO., 18 E. 44TH ST., NEW YORK 17, N. Y.

Speeds Pipe Repairs

418 Now you can make quick, permanent repairs on water, gas, or oil pipelines with the new Series 2F Full Circle Clamp Coupling. These couplings may be used to repair broken cast-iron or asbestos-cement pipe, or to connect two lengths of cast-iron, steel, Transite Ring-Tite or Century Fluid-Tite pipe. For *Bulletin 2F*, write SMITH-BLAIR, INC., 535 RAILROAD AVE., SOUTH SAN FRANCISCO, CALIF.

Counts Your Traffic

419 Correct traffic control depends on accurate traffic analysis. To assure the accuracy and dependability of your vehicle count—in any weather—use a Streeter-Amet Traficounter. These portable machines are easy to carry, easy to install, and simple to operate. They provide trouble-free service and a maximum of printed information. Write STREETER-AMET CO., 4101 RAVENSWOOD AVE., CHICAGO 13, ILL.

Sod Cutter

420 Wherever an efficient sod cutter is needed—in parks, cemeteries and public golf courses—you can get more work out of a Ryan Jr. The low-cost machine features reciprocating blade action that slices through the toughest roots quickly and easily. A specially designed blade operates at more than 900 strokes a minute, cutting clean edges in all kinds of grass. Write RYAN LANDSCAPING EQUIPMENT CO., 871 EDGERTON ST., ST. PAUL 1, MINN.

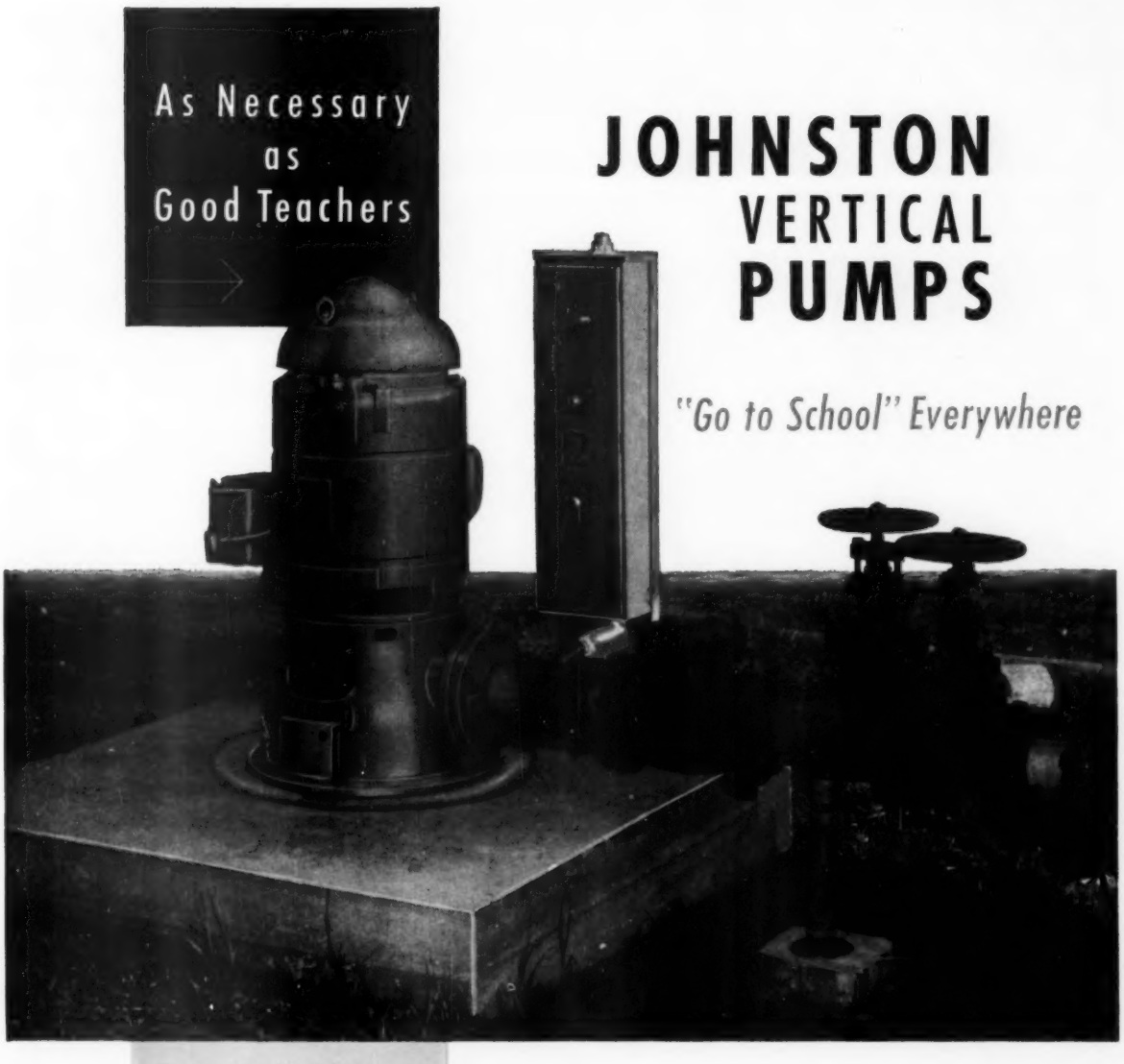
Economical Trenching

421 Trenches for installing water, gas and electric service lines can be made quickly and easily with a light-weight Ditch Witch trenching machine. This one-man unit is easy to operate and economical to maintain. Three models are available for digging straight, curved or cornered trenches from 2 to 12 inches wide, and up to 36 inches deep. Write THE CHARLES MACHINE WORKS, 617 B ST., PERRY, OKLA.

Bituminous Distributors

422 Simplify all your street construction projects with a Seaman-Gunnison Swing Bar distributor, designed with front-end controls. These efficient units are available mounted on trucks or trailers, and feature an "Air-Snap" spray-bar shut-off. This special feature assures the positive, accurate application of tars and bituminous binders, and provides instant flow and "shut-off." Get full details from SEAMAN-GUNNISON CORP., 201 LYNN AVE., BARABOO 9, WIS.

(See p. 46 for more Bulletins)



JOHNSTON VERTICAL PUMPS

"Go to School" Everywhere

Johnston Pump installed at a new school in California

JOHNSTON
VERTICAL PUMPS

You'll find "well-educated" Johnston Pumps giving education, as well as water, a lift at grammar schools, high schools, colleges and other educational institutions everywhere. A dependable and plentiful supply of water is absolutely essential to the flow of learning, and a good Johnston Pump often precedes the hiring of the teachers. Low first cost, low operating cost, scientific design and interchangeable parts are some of the reasons why Johnston Pumps have been so popular for nearly half a century.

Get the complete story. Write or call today for colorful descriptive bulletin.

JOHNSTON PUMP COMPANY

Founded in 1909

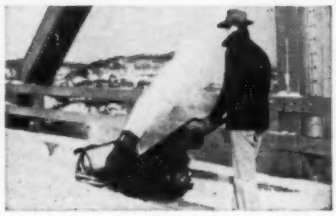
BIN "K", PASADENA 15, CALIFORNIA

Push-Button Power for FAST Snow Removal!

GRAVELY Snow Plow or Snowblower with SELF STARTER!

Now just touch your toe to power—new Gravely Self-Starter gives you instant power for the toughest snow removal jobs. The Gravely is the only small tractor that gives you a choice of ALL THREE snow removal tools—Snow Plow, Snowblower, or Power Brush—interchangeable in a moment to suit your job.

Quickly transported from job to job, the Gravely's power and ability to move snow FAST has been proved by thousands of hours of use by Cities, Parks and Industries everywhere.



NEW STEERING SULKY . . .

A New Experience in POWER MOWING

Snow removal is only one of the jobs the Gravely does better, faster, easier. Now with 23 attachments, the Gravely offers you Gang Mowers, 75-inch cut, guided by the new Gravely Steering Sulky that makes handling Gang Mowers so easy a child can do it . . . with unsurpassed maneuverability, at a low, low price!

Let's Show You What the Gravely Can Do for YOU . . .

WRITE FOR LITERATURE . . . OR FREE DEMONSTRATION

GRAVELY TRACTORS, INC.

BOX 73 **DUNBAR, WEST VIRGINIA**

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Easy Way to Make Service Connections

423 Service connections for steel, cast-iron and asbestos-cement pipe can be made quickly and easily with the Skinner-Seal service saddle. The saddle is made of malleable iron, and features a single massive bolt. All sizes are available ranging from ⅛ to 12 inches in diameter. Write M. B. SKINNER CO., SOUTH BEND 21, IND.

Asphaltic Seal Coat for Low-Traffic Areas

424 Quickly and easily applied over any bituminous pavement, Walk-Top asphaltic compound provides a water-tight, long-wearing surface that is smooth and uniform. This smooth surfacing is especially desirable in playgrounds, parking lots, driveways and other low-traffic areas. It is available in red, green or black, and may be applied by brush or squeegee. Write AMERICAN BITUMULS & ASPHALT CO., 200 BUSH ST., SAN FRANCISCO 20, CALIF.

Outdoor Fluorescent Fixture

425 An aluminum fluorescent fixture for lighting tunnels, underpasses, loading docks or shed areas, is offered by CROUSE-HINDS CO., SYRACUSE, N. Y. The new fixture weighs 50 pounds, and measures 72¼ inches long. It consists of two assemblies—a housing for the lamps, ballast, wiring and reflectors; and a door which supports a gasketed, clear ribbed plastic cover. Write for details.

New Life for Old Machines

426 *Basic Blading*, a guide to motor grader operation, explains how city departments can get top efficiency from their old motor graders. The booklet includes a few brief tips on operating in mud and in rocky and sandy soils. It discusses basic blade positions, working in reverse, and ditching. For your copy, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

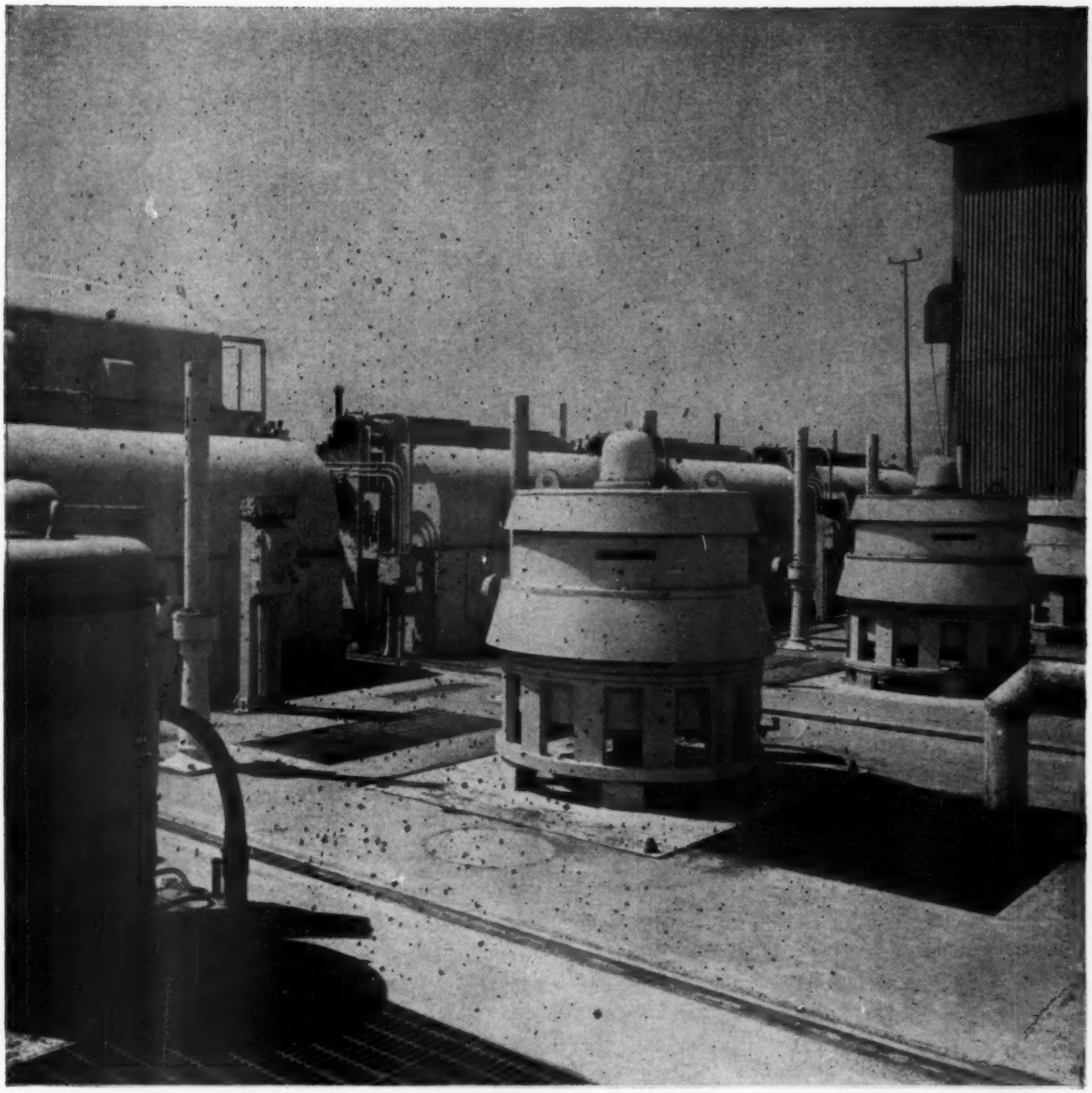
Membrane Filters Simplify Laboratory Tests

427 Used in water and sewage treatment plants, Green Grid "Bac-T-Flex" flexible membrane filters will determine the number and types of bacteria and other microbes in water and sewage, and may be used for the filtration of fine particles from suspensions. For information and instructions regarding the use of membrane filters, including technique for sterilization, filtration and cultivation, get your *S&S Membrane Filter Folder* from CARL SCHLEICHER & SCHUELL CO., KEENE, N. H.

Repairs Pipe Leaks Quickly

428 Don't interrupt water service in order to repair costly pipe leaks! Instead, use the efficient Atlas pipe tool and patches. The new tool consists of a sturdy, light-weight clamp, easily handled by one man. The patches, made of steel with neoprene gaskets, are shaped to fit specific pipe sizes. Write ATLAS INDUSTRIES, INC., 5601 ARMOUR DR., P. O. BOX 8152, HOUSTON, TEX.

(See p. 48 for more Bulletins)



Four Fairbanks-Morse low-lift propeller pumps at Fairless

Delaware Borrow

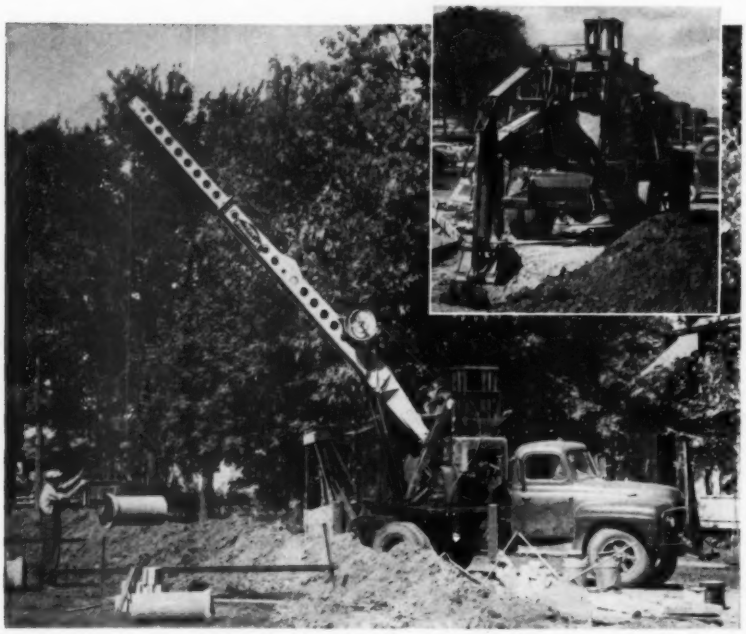
Every day the Fairless Works takes 230 million gallons of water from the Delaware River, uses it in the production of iron and steel, and after treatment returns it to the river. The "big borrow" is started in a plant pumping station equipped with ten Fairbanks-Morse propeller and turbine pumps in efficiently chosen sizes up to 48 inches.

There are pumps in the Fairbanks-Morse line to move any magnitude of industrial water supply at any appropriate pressure, and other pumps to meet ordinary or unusual problems of industrial wastes treatment and disposal. A Fairbanks-Morse hydraulics engineer will be happy to work with your engineers or consultants in specifying the right pump for your specific job. Fairbanks, Morse & Co., Dept. A-11, 600 South Michigan Avenue, Chicago 5, Illinois.

FAIRBANKS-MORSE
a name worth remembering when you want the BEST

PUMPS · SCALES · DIESEL LOCOMOTIVES AND ENGINES · ELECTRICAL MACHINERY · RAIL CARS · HOME WATER SERVICE EQUIPMENT · MOWERS · MAGNETOS

QUICK CHANGE
Makes Hydrocrane Right for Water, Sewage Work



When your work calls for lifting, digging and trenching all in the same day, you need a machine that converts from crane to clamshell to hoe quickly and easily. That machine is the Hydrocrane. Owners report they can switch their Hydrocrane to hoe in less than one man-hour. Changing from crane to clamshell is just a matter of minutes.

Stop using the wrong front end just because changing front ends is a tough, time-consuming, uneconomical operation. Get a Hyrocrane! Take advantage of this versatile machine's precision control, the long reach of its telescoping crane boom in placing valves or pipe . . . in loading or unloading materials. Then, when needed, switch quickly to the hydraulic clamshell bucket to dig valve pits, manholes or catch basins.

When it comes to trenching, you'll find the fast and easy changeover to hoe gets you on the job sooner. And, once at work, the Hydrohoe's exclusive triple digging action — normal hoe arc, telescoping boom and wrist action at the dipper — keep output high, reduce hand trimming.

Have your Bucyrus-Erie distributor demonstrate quick change, as well as the many other features that make the Hydrocrane so right for municipal work. 130H56

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Improved Traffic Controllers

429 A new traffic control line features fewer components and, consequently, fewer things that might go wrong. Jack mounting makes repairs no more difficult than changing a radio tube. Standard replacements can be bought at your nearest radio store. For full information, write SECTION 453-70, GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

All Types of Asphalt Pavement

430 Texaco asphalt cement, cutback asphalts and slow-curing asphaltic oils offer city officials a wide choice of street improvements, from heavy-duty plant-mixed asphalt paving down to inexpensive surface-treatments for light traffic. Helpful information concerning all of these types is supplied in two free booklets. Write THE TEXAS CO., ASPHALT SALES DIV., 135 E. 42ND ST., NEW YORK 17, N. Y.

Sewage Treatment Glass Covers

431 Whenever you need a glass cover in your sewage treatment plant, for sludge beds, sprinkling filters or tanks, use these trouble-free aluminum glass covers with their supporting steel framework. For a new set of Engineers' Service Sheets containing details, specifications and recommendations, write LORD & BURNHAM CORP., IRVINGTON, N. Y.

Fire Hydrants

432 All the internal working parts of an Iowa fire hydrant are easily removed through the top of the unit, simplifying maintenance without special tools. These effective hydrants provide an unobstructed waterway, and are easily opened and closed. They are quickly installed, won't freeze, and come with bell, flanged, or mechanical joint connections. Write IOWA VALVE CO., OSKALOOSA, IA.

Stops Water Hammer

433 The J. A. Zurn Mfg. Co. is offering a new shock absorber, "Shoktrol," designed to stop annoying water hammer. "Shoktrol" absorbers are available in six sizes for pipe ½ to 2 inches in diameter. Made of stabilized austenitic stainless steel, they are lightweight and easy to install. Write J. A. ZURN MFG. CO., ERIE, PA.

Aluminum Street-Lighting Standards

434 Street-lighting standards made of Hapco aluminum are fast and easy to install, won't rust or corrode, and never need painting. There is a Hapco pole designed for every outdoor lighting application. For *Catalog HAL-754*, write HUBBARD ALUMINUM PRODUCTS CO., DIV. of HUBBARD and CO., PITTSBURGH 1, PA.

Municipal Castings

435 Municipal castings in every size, shape and style may be obtained from the BUFFALO PIPE & FOUNDRY CORP., DEPT. J, BOX 55—STATION B, BUFFALO 7, N. Y. For detailed information on valve, service or roadway boxes, meter boxes, manhole rings and covers, or other municipal castings, send for *Bulletin M11*.

(See p. 56 for more Bulletins)

Here Now! NEW CHEVROLET TASK·FORCE 57 TRUCKS!

FIRST with the MOST modern features

They're out to save you hours and dollars on any hauling job... and they've got big new power plus the modern features that make it a sure thing! They put you way ahead with time- and work-saving advantages you won't find in any other truck!

Again, in 1957, Chevrolet light- and medium-duty trucks bring you the industry's most advanced features—new developments that have already been proved in a history-making preannouncement test run! (See below.)

For '57 there's bold new styling to match Chevy's remarkable stamina and dependability. There's fleet-action power in Chevy's outstanding engine line-up for '57—with modern versions of the famous Thriftmaster and Jobmaster 6's, efficient short-stroke Trademaster V8's and sensational new 283-cu.-in. Taskmaster V8's!

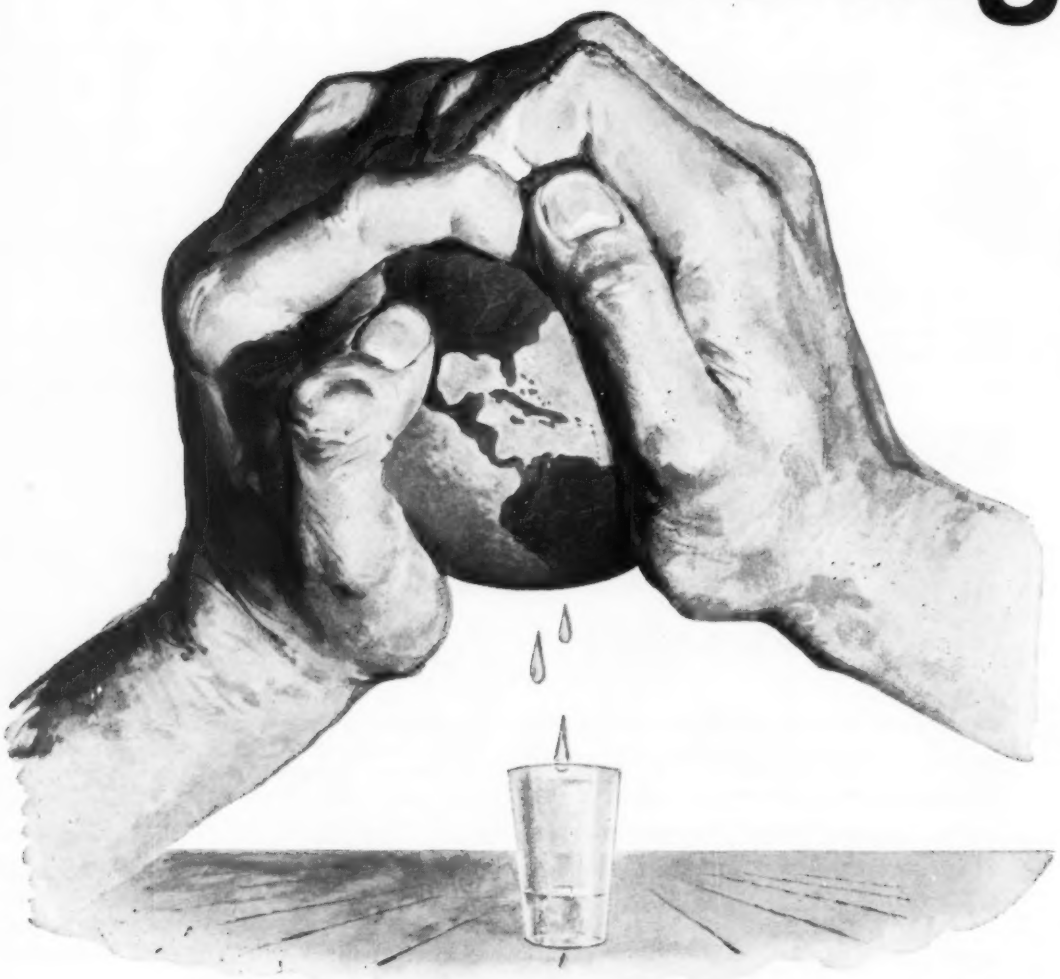
Other way-ahead '57 features include advanced Ball-Gear steering, high-output 12-volt electrical system, modern tubeless tires and great optional (extra cost) features such as Hydra-Matic and Powermatic transmissions!

Be sure to check the new cab features, too . . . the handsome new upholstery, the new steering wheel, the new exterior colors. Your Chevy dealer has all the details, so see him soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

Alcan Highway Test Run Proves Chevrolet Ruggedness!

In an AAA-certified endurance run, 6 light-, medium- and heavy-duty trucks carrying typical cargoes roared up the 1,520-mile Alcan Highway (normally a 72-hour run) in less than 45 hours! In dramatic fashion, new Chevy trucks conquered one of the world's most challenging roads to display the great performance qualities they'll bring to *your* roads!

the big



NO ONE KNOWS America's water problem better than you.

With water consumption today four times greater than fifty years ago . . . and mounting daily . . . your responsibilities are heavier than ever.

Many of you not only must find new sources of water but new ways to conserve your present supply. This calls for the cooperation of an informed and alert public, conscious of your problem and mentally conditioned to help you solve it.

MODERNIZED **cast iron**

squeeze is on!

Here, we can and will continue to help.

Our national campaign, reaching millions, stresses the increasing need for industry and homeowner alike to use water wisely and plan in advance for adequate water facilities. It urges realistic water rates and asks support for the forward-looking legislation and bond issues that will insure a plentiful supply for the future.

It's designed to help America conserve its most precious national resource . . . and keep water flowing, freely and abundantly, for all.

CAST IRON . . . the pipe that's bought on proof, not claims

No other pipe can point to so convincing a record of long life.

For over 70 public utilities in America, cast iron mains laid over a century ago are still giving satisfactory service. This demonstrated record of long life (made in the ground, not printed claims) not only gives the public the dependability it has a right to expect in a water system . . .it saves tax dollars as well. Once in the ground, cast iron serves for generations with minimum maintenance. Cast iron's long term economy pays off!

Today, water officials can rely on even better cast iron pipe. Modernized cast iron, centrifugally cast to be even tougher, stronger, more uniform. And where needed and specified, lined with cement mortar to assure sustained carrying capacity throughout its long service.

You specify wisely and well when you specify cast iron pipe for your water system. The experience of centuries proves you chose the best.

Cast Iron Pipe Research Association, Thomas F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3, Ill.

This gallant old cast iron water main laid in 1850 is still serving and saving tax dollars for the citizens of Buffalo, N. Y.

CAST Q IRON®

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

pipe FOR MODERN WATER WORKS

Set your sights on an Allis-Chalmers HD-6B

built for business on both ends

Here's what Roy Worthington, Hermitage, Missouri, says about his HD-6 with hydraulic bulldozer and rear-mounted ripper:

"More yardage per day." Production moves fast when this HD-6 team digs in. A rear-mounted hydraulic ripper plows through rock and dirt, loosens it for faster, more efficient dozing on this quarry exploration job.

"Better maneuverability." On steep hillsides or in rocky ravines, the HD-6 with 15,850 lb and almost 7 ft of track on the ground, keeps sure-footed balance. Fast-acting controls, easy shifting and full visibility put the operator in full command of his work at all times.

"Smooth-running, constant power." This is what Roy Worthington said about the 63-belt-hp Allis-Chalmers diesel engine. It delivers power for big output and has ample reserve. Stripping topsoil or digging ponds, the HD-6 is powered for more production, lower job costs, longer life.

"Simplified maintenance." Worthington's operator can leave his grease gun home for one to two weeks because the shortest lubrication interval is a full 75 hours! What's more, the HD-6 has *1,000-hour* lube intervals on truck wheels, support rollers and idlers. This eliminates daily greasing, converts maintenance time to production time.

"Excellent service." Owners know how Allis-Chalmers construction machinery dealers work with them to keep their Allis-Chalmers equipment in tip-top shape. See the dealer in your territory soon. He'll be glad to tell you more about the HD-6 and show you one at work.

HD-6B
52 drawbar hp
63 belt hp
15,850 lb

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

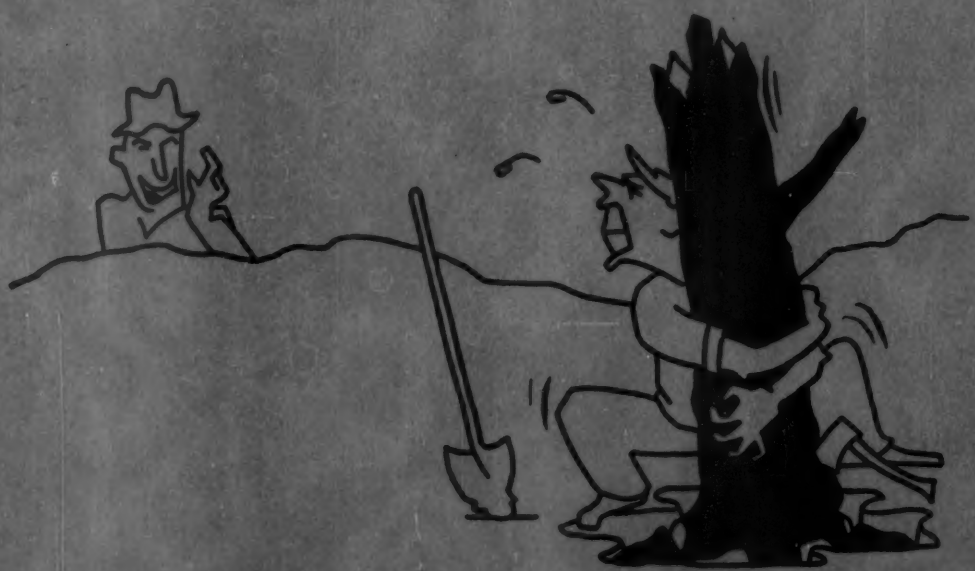
Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

NEED HELP?



If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on Page 30.

380	388	396	404	412	420	428	436	444	452	460	468
381	389	397	405	413	421	429	437	445	453	461	469
382	390	398	406	414	422	430	438	446	454	462	470
383	391	399	407	415	423	431	439	447	455	463	471
384	392	400	408	416	424	432	440	448	456	464	472
385	393	401	409	417	425	433	441	449	457	465	473
386	394	402	410	418	426	434	442	450	458	466	474
387	395	403	411	419	427	435	443	451	459	467	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title.....

Address .....

..... 11-56

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 223, as circled below:

905	910	915	920	925	930	935
906	911	916	921	926	931	936
907	912	917	922	927	932	937
908	913	918	923	928	933	938
909	914	919	924	929	934	939
						940

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title:.....

Address:.....

..... 11-56

A Listing of Your Business Connection is Important

DO IT THE EASY WAY

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

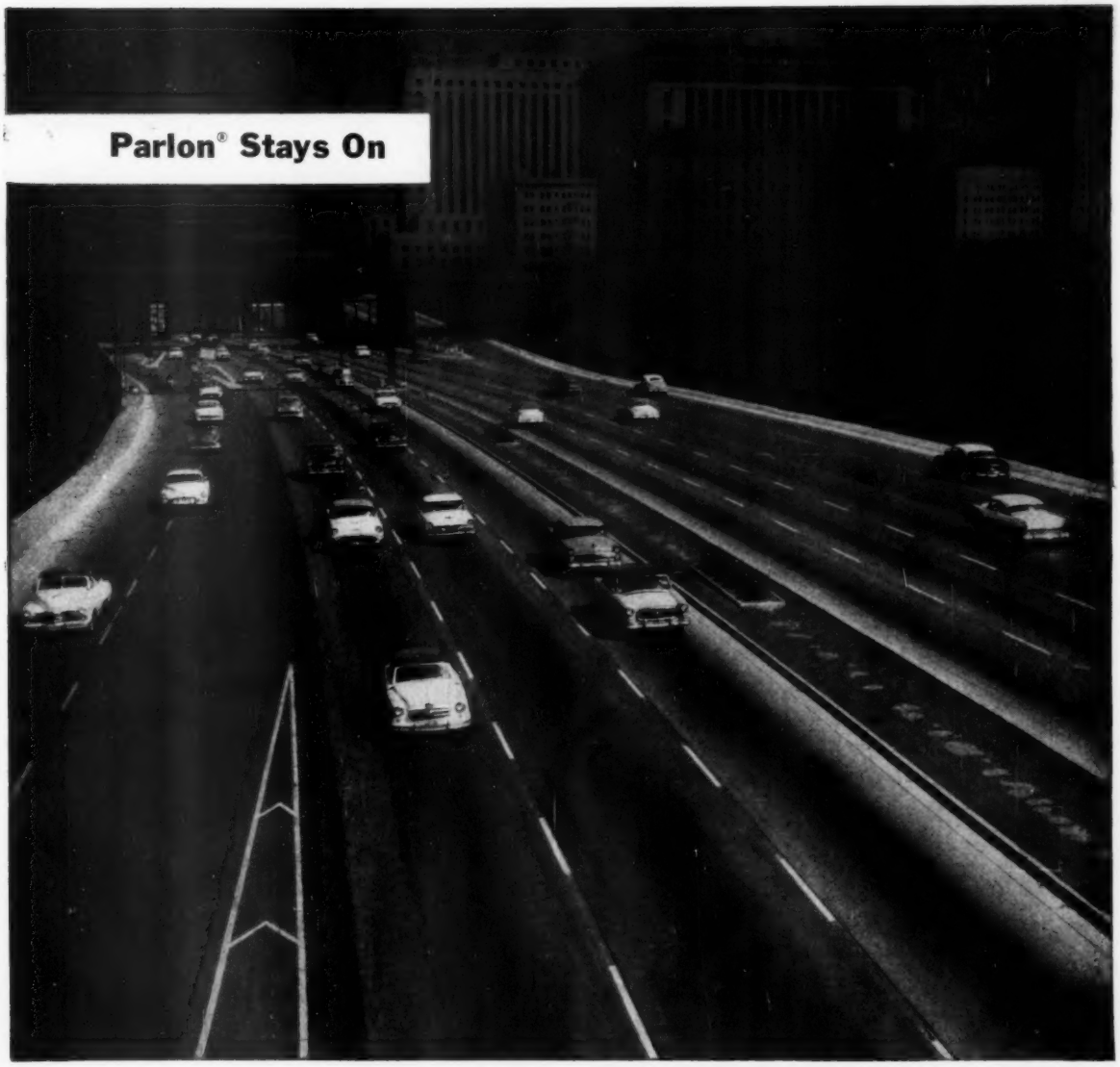
FIRST CLASS PERMIT No. 251, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue



Because they successfully meet the challenge on heavily traveled freeways and major highways, Parlon-based traffic paints are specified by state, county, and city engineers from coast to coast.

WHY PARLON TRAFFIC PAINTS SET THE PACE

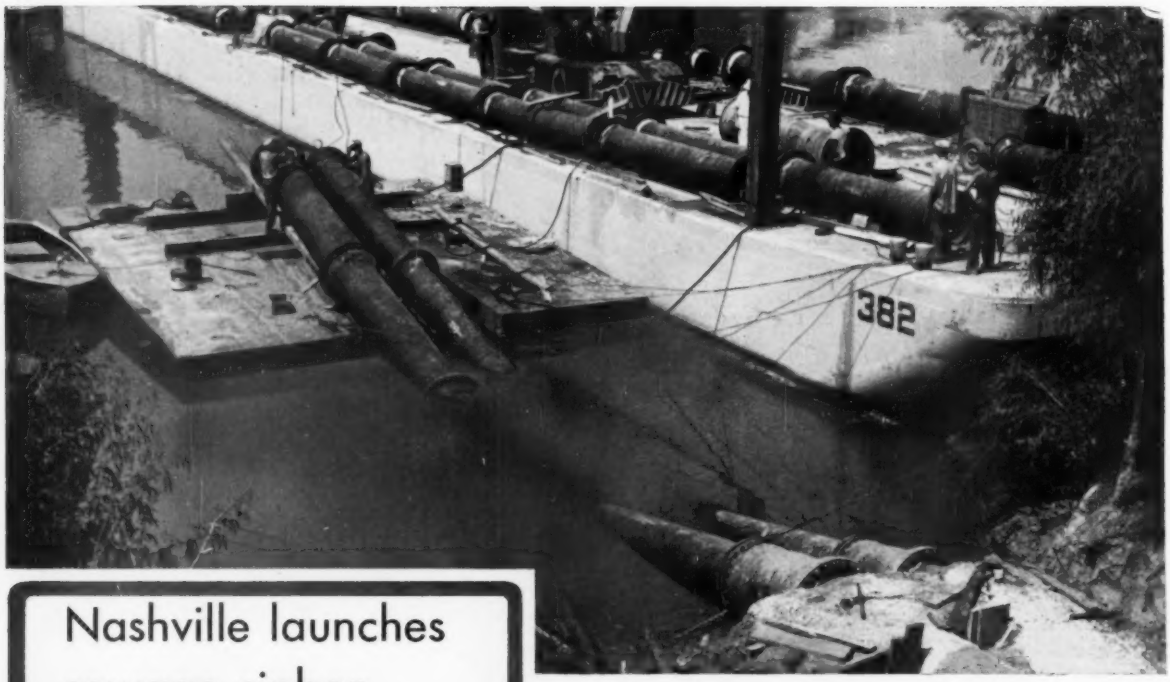
- LONG WEAR
- RAPID DRY
- EXCELLENT ADHESION
- GLASS BEAD BOND
- EASE OF APPLICATION
- LOWER LONG-TERM COST

Information on Parlon-based traffic paints is available from your local supplier of quality paints or directly from Hercules.

Cellulose Products Department
HERCULES POWDER COMPANY
INCORPORATED
997 Market Street, Wilmington 99, Del.

CR56-8

PARLON (CHLORINATED RUBBER) PAINTS ARE AVAILABLE FROM 400 MANUFACTURERS UNDER THEIR OWN BRAND NAMES



Nashville launches sewage siphon... **AMERICAN** sets the course

This photograph of parallel installation of 30″ and 24″ Molox Ball Joint Pipe demonstrates its deflection capability.

When Nashville, Tennessee, began a program of river pollution control, American Molox Ball Joint Pipe, centrifugally cast, was selected for two siphons to carry city sewage across the Cumberland River.

Molox Ball Joint Pipe was developed by the American Cast Iron Pipe Company, especially for sub-aqueous service. It is an integral centrifugally cast pipe, insuring maximum strength. Each joint provides approximately 15° deflection and allows expansion and contraction.

Molox is only one of a complete line of fine quality, longer-lasting centrifugally cast products of the American Cast Iron Pipe Company . . . products which are the result of forward-looking research and competent engineering.

Here, as in hundreds of other sewage and water installations, American helped "set the course" for permanent, economical pipe service. Specify American Cast Iron Pipe.

SALES OFFICES

New York	Dallas	Orlando
Chicago	Houston	Pittsburgh
Kansas City	Los Angeles	Cleveland
Minneapolis	San Francisco	Denver

AMERICAN CAST IRON PIPE CO.
BIRMINGHAM 2, ALABAMA

Now THESE New Time-Savers Make JOHN DEERE Industrial Tractors Better Buys Than Ever!

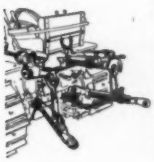
1 *Time-Saving*
DIRECTION REVERSER

Lets you move forward or backward in the same speed—no time wasted shifting gears. Detail shows lever in neutral position, dotted lines reverse and forward travel positions. Available as optional equipment on "420" Crawler and Utility models.

2 *Time-Saving*
FOOT THROTTLE

Increases engine speed and ground-travel speed approximately 25 per cent—makes possible speeds up to 17 mph on the highway. Helpful when maneuvering in close quarters. Inexpensive. Easy to attach. Optional for "420" Crawler and Utility models.

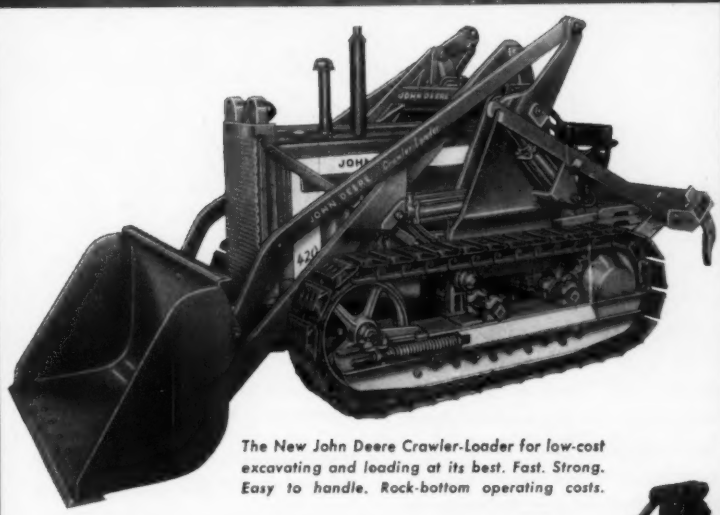
3 *Heavy-Duty*
3-POINT HITCH



Gives you "pick up and go" operation with the John Deere Crawler tractor. Change tools in minutes, raise and lower them hydraulically. Heavy-duty construction. Leveling adjustments made without leaving tractor seat. Optional for John Deere Crawlers.

4 *Time-Saving*
5-SPEED TRANSMISSION

Gives you an extra speed forward for increased versatility in many operations. On Utility tractors, the new speed is 6¼ mph and on the Crawler, 3⅜ mph. Quickly repays its small extra cost on mowing, landscaping, etc. Factory installation only.



The New John Deere Crawler-Loader for low-cost excavating and loading at its best. Fast. Strong. Easy to handle. Rock-bottom operating costs.

John Deere "420" Utility Tractor with Loader and Backhoe. Average fuel consumption: about 1 gallon per hour.

JOHN DEERE Industrial Tractors and Equipment

Backed by nearly 40 years of tractor manufacture for dependable service and quality

SEND FOR FREE LITERATURE

JOHN DEERE INDUSTRIAL DIVISION
Moline, Ill., Dept. D49A

Please send me your illustrated booklet on John Deere Industrial Tractors and Working Equipment. Include name of nearest dealer.

*Name*_____

*Firm*_____

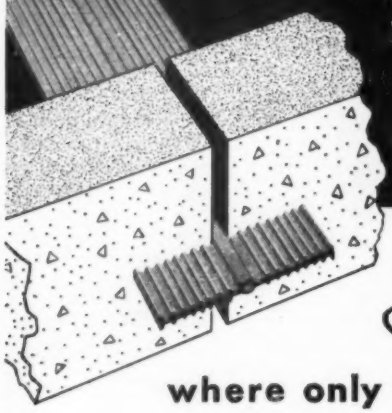
*Address*_____

City & State _____

DURAJOINT®

Polyvinylchloride = PVC

WATERSTOPS FOR EXPANSION & CONSTRUCTION JOINTS



Specified

where only the BEST will do!

Architects and engineers the world over are convinced that "DURAJOINT" is a waterstop on which they can successfully stake their reputation. This thermo-plastic waterstop, designed from a specially compounded Polyvinylchloride = PVC, is extruded with a center hollow bulb and longitudinal ribs on both sides that insure the distribution of critical pressures and enhance the holding power. "DURAJOINT'S" adequate elasticity and excellent tear resistance allows it to successfully handle vertical or lateral movements of masses of concrete without being sheared. Specify "DURAJOINT" with the comfort of knowing that this is a waterstop that will, undoubtedly, outlast the usefulness of the structure in which it is used.

ADVANTAGES

- **Resistant to extreme waterhead pressures**
- **Tensile strength of not less than 1900 lbs. per square inch**
- **Superior holding strength . . . elongation ability of more than 350%**
- **Effective temperature range of −54°F. to +176°F.**
- **Chemically inert . . . resistant to acids, alkalis, weather, chlorinated water, oil, fungus, etc.**
- **Quickly, easily spliced "on the job" by merely applying heat and holding the ends together . . . requires no welding or vulcanizing equipment**
- **Available in lightweight, easy to handle 50 ft. coils . . . withstands abuse without damage**

"DURAJOINT" enjoys national distribution through the outlets of Tecon Products Inc. in the 11 western states and W. R. Meadows, Inc. in the other 37 states of the mid-western, southern and eastern portions of the United States. Write today for complete information.

A PRODUCT OF ELECTROVERT

Distributed in your area by . . .

TECON PRODUCTS INC.
304 S. ALASKAN WAY
SEATTLE 4, WASHINGTON

W. R. MEADOWS, INC.
26 KIMBALL STREET
ELGIN, ILLINOIS

Catalogs for You

Write directly to the manufacturers, or use Post Card at P. 52

Stores Gas Economically

436 The Wiggins gasholder for storing sewage digester gas is not only safe, efficient and economical but—due to its simplicity—it is also good to look at. The structure has a dry, frictionless seal, and operates without water, tar, grease, or complicated exterior mechanisms. It s designed by GENERAL AMERICAN TRANSPORTATION CORP., 135 S. LaSALLE ST., CHICAGO 90, ILL.

How to Install Transite Pressure Pipe

437 Written for city employees who direct and do the actual work of handling and installing Transite pressure pipe, this pocket-size booklet explains how to install water and sewer lines quickly, easily and economically. For your copy of the new *Installation Guide*, write JOHNS-MANVILLE, 22 E. 40th ST., NEW YORK 16, N. Y.

Year-Round Street Sweeper Removes Snow, Too

438 This new, low-cost sweeper provides municipalities with an inexpensive unit for removing snow from streets and roads as well as sweeping trash. The Super Road Bird Sweeper is self-propelled, and is powered by a 4-cylinder water-cooled engine. An unobstructed brush turns 30° to the right or left. For further details, write LITTLE GIANT PRODUCTS, INC., 1530 N. ADAMS ST., PEORIA, ILL.

Police Servi-Car Aids Law Enforcement

439 Practically any police assignment you can think of—from directing traffic to escorting VIP'S—can be completed faster and more effectively with an officer on a Servi-Car. These sturdy vehicles have all the mobility of a motorcycle plus extra equipment-carrying capacity. For full details, write HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

Tax Accounting Fast and Easy

440 A sure way to see that your city keeps up to date on tax records is to use a Burroughs tax accounting machine. This combination typewriter and calculator computes—as it types—as it posts. There are no time-consuming collating, sorting or merging steps. Get full information from the BURROUGHS CORP., DETROIT 32, MICH.

Pushes Pipe Underground

441 An easy way to install flexible pipe, sewer pipe, and rigid pipe or conduit underground is described and illustrated in this new booklet on powered pipe pushers. Speed-Thru pushers are quickly operated by one man, and provide long, smooth, continuous powered strokes. They are ideal for installing pipe under busy streets, airport landing strips and railroad tracks. Write MERCURY HYDRAULICS, INC., 2440 BLAKE ST., DENVER 5, COL.

Street-Lighting Equipment

442 For a new price list on Pemco street and highway lighting equipment, write PHILADELPHIA ELECTRICAL & MFG. CO., 1200-36 N. 31st ST., PHILADELPHIA, PA.

(See p. 58 for more Bulletins)

Now hear your 2-Way **RADIO CALLS** at Home or in your Car

The VOLUNTEER is specially designed to receive the 2-way signals on FM radio systems normally used by police and fire departments, civil defense organizations, utilities, forestry services as well as taxicabs, trucks and ambulances. The VOLUNTEER is so small that it mounts practically out of sight under a car dash yet packs more power than sets costing several times as much.

Car installation can be made in a few minutes and at low cost. Your regular auto radio antenna is used. Home sets merely plug-in like any radio.

THE VOLUNTEER is Quality and Precision Built Throughout

The impressive list of features proves that the VOLUNTEER is in a class of its own. Only the long experienced designers and builders of the famous PAK-FONE 2-way Portable, so widely used in municipal, government and industrial service, could offer so much value.

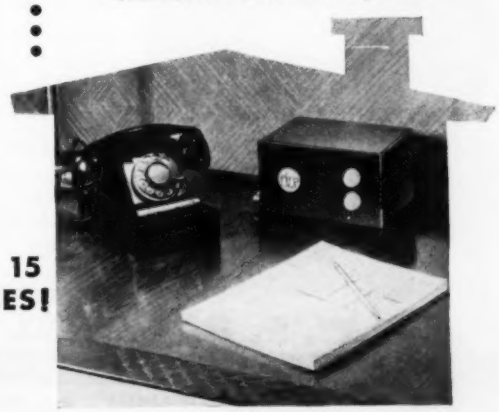
For complete information, contact your local 2-way radio service organization or write for literature.

Only

$99.00

Less Crystal

- **Extremely Compact (only 4 x 6 x 8 inches**
- **Low Battery Drain (car models)**
- **Transistor Power Amplifier (car models)**
- **15 Tubes (in AC High Band Models)**
- **Electronic Squelch Circuit**
- **Crystal Controlled (will not drift off station)**
- **Built-in Loudspeaker**
- **Beyond Compare in Performance and Cost**
- **Qualifies for FCDA Matching Funds**



15 TUBES!

ir

INDUSTRIAL RADIO CORP.

428 N. Parkside Ave. • Chicago 44, Ill.

Meet AWWA Specifications* for Tight Closure

at Maximum Shut-off Pressures of 25, 50 and 125 psi

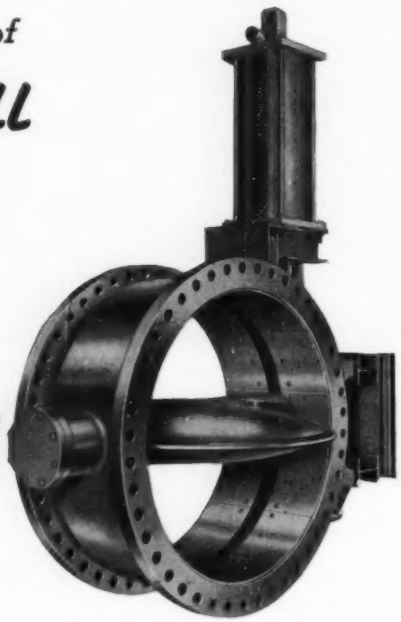
with your choice of

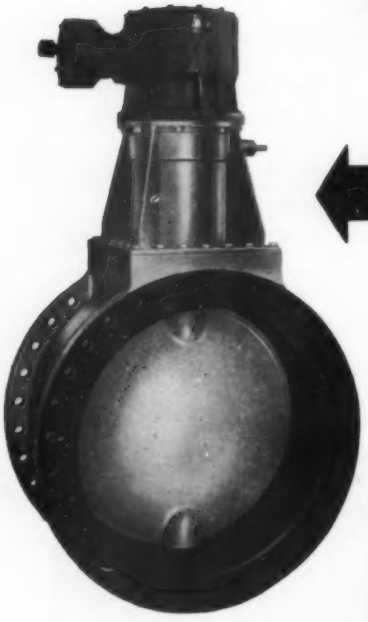
W. S. ROCKWELL

Flanged-End

BUTTERFLY VALVES

Rubber-Seated





Rubber-Lined

Both types in all sizes to 72". Manual operators – gear reducer with hand wheel or chain wheel; automatic operators–electric, hydraulic or pneumatic; for safe seating and unseating of valve disc at water velocity of 8 and 16 f.p.s.

A standard line of valves in sizes to 144" is available for other industrial, municipal and utilities requirements for tight shut-off or regulation of fluid flow. Write for Catalog.

*AWWA C-504-55T

W. S. ROCKWELL COMPANY

BUTTERFLY VALVES • SLIDE VALVES • AUTOMATIC VALVES

2726 ELIOT STREET • FAIRFIELD, CONN.

Sales Representatives in Principal Cities

Catalogs for You

Write directly to the manufacturers, or use Post Card at P. 52

Traffic Lines Get 24-Hour Visibility

443 Flex-O-Lite's "Free Flowing Bead Dispenser," formerly available for marking traffic lines four inches wide, is now available in 5- and 6-inch widths as well. The new dispensers are easily attached to any line marking machine, and will dispense any number of beads at any given speed. For full information, write FLEX-O- LITE MFG. CORP., 8301 FLEX-O-LITE DR., ST. LOUIS 23, MO.

Prevents Overloading of Trucks, Buses

444 An easy way for traffic officials to prevent overloading of trucks and buses is with the "Hi-Way" Loadometer, a portable scale designed for fast, simple operation. This efficient Loadometer quickly weighs vehicles to determine overloads, at the point at which they are stopped. It is completely accurate, and may be quickly transported from place to place. Write LOADOMETER CORP., P. O. BOX 81, BALTIMORE 11, MD.

Transformers

445 A new 16mm sound-color film, "Transformers in the Making," shows the progressive steps in the manufacture of power and distribution transformers, including tank fabrication, coil winding, assembly, testing and shipping. To obtain a free showing of this 27½-minute movie for your community, write L. C. Dobrunz, Sales Promotion Manager, WAGNER ELECTRIC CORP., 6400 PLYMOUTH AVE., ST. LOUIS 14, MO.

Stadiums and Grandstands

446 Municipal stadiums and grandstands constructed of U. S. steel cost less to build and less to maintain than other types of permanent construction. These structures are easily adapted to any local requirements. They are simple to extend by adding standard sections at the ends, or by "double-decking." Get full information from AMERICAN BRIDGE DIV., UNITED STATES STEEL CORP., 525 WILLIAM PENN PL., PITTSBURGH, PA.

Portable Asphalt Plant

447 A 10-15 ton capacity asphalt plant that is small enough to tow, yet, big enough to produce hot mix for any street maintenance, driveway or parking lot project, is offered by the WHITE MFG. CO., ELKHART 1, IND. The efficient Model L-8 features a complete asphalt plant—dryer, mixer and heating kettle—on one chassis. It is described in an informative new catalog, available on request.

Lifts Snow Plows Automatically

448 Fast, automatic snow-plow lifting is assured with Monarch Dyna-Might power hydraulic controls. Both fan belt and electric models are available for practically all makes of trucks. For further information, write the MONARCH ROAD MACHINERY CO., 1331 MICHIGAN ST., N. E., GRAND RAPIDS 3, MICH.

(See p. 60 for more Bulletins)

Transportation. Over the roughest terrain, through sand, soft earth or mud, in good weather or bad, the Universal 'Jeep'†, with the extra traction of its 4-wheel drive, takes supervisory personnel, work crews, tools, equipment and supplies wherever they are needed. It shifts easily into conventional 2-wheel drive for quick highway travel between jobs.

Ten billion miles of proof!*

One of the reasons why so many 'Jeep' vehicles are used in public service

Hauling and towing. The "go-anywhere" 'Jeep' Truck is the only truck in its weight class originally designed and engineered completely for 4-wheel drive off-the-road travel. It carries one-ton payloads... tows heavily loaded trailers.

Mobile power. The Universal 'Jeep', with power take-off or hydraulic lift, takes power right to the job to operate this trencher and many other types of equipment including winches, grader blades and sprayers or dusters.

Maintenance. The 4-Wheel-Drive 'Jeep' Utility Wagon carries up to 110 cubic feet of bulky cargo, or six passengers. It takes supervisors, workers and tools to maintenance operations other vehicles can't reach.

It's easy to see why economy-minded officials everywhere are turning to 4-Wheel-Drive 'Jeep' vehicles for public works and public service operations. They are the only 4-wheel drive vehicles in their weight class that are time-tested and performance-proved in more than 10 billion miles* of on-the-job transport service. Their "go-anywhere" dependability provides extra insurance in daily public service use and in emergencies.

Only Willys has so many years of experience in engineering 4-wheel drive vehicles in the under 6000 GVW weight class. 'Jeep' vehicles help stretch tax dollars through their long life, low upkeep and high resale value. Ask your Willys dealer for an on-the-job demonstration, or write for information.

The 'Jeep' family of 4-Wheel-Drive vehicles

WILLYS... makers of the world's most useful vehicles

WILLYS MOTORS, INC., TOLEDO 1, OHIO

*An understated estimate of the miles of transport service driven by 'Jeep' family vehicles. Some estimates place the mileage at more than *fifty* billion.

†Model CJ-5 shown.

An important point for you to consider

All-Aluminum Chain Link Fence costs less than rustable fence that has been painted once

From parks to playgrounds, from schools to golf courses—all-aluminum chain link fencing provides real savings, adds permanent beauty to enclosed areas.

Aluminum lasts longer because it is rustproof, resists corrosion—saves replacement costs. Aluminum never needs painting—a needless recurring expense.

Brightens up enclosed areas. Aluminum retains its bright new look for years and years. And—unlike rustable metal fencing—aluminum fence never looks "down-at-the-heels." Result: your city looks neat and clean.

Reynolds Metals Company does not make aluminum fencing. But Reynolds does supply quality aluminum to leading chain link fence manufacturers. Names will be furnished on request. *Reynolds Metals Company, P.O. Box 1800-NT, Louisville 1, Kentucky.*

Write for suggested specifications for All-Aluminum Chain Link Fencing.

See "CIRCUS BOY," Reynolds new dramatic series, Sundays on NBC-TV.

The Finest Products Made with Aluminum are made with REYNOLDS ALUMINUM

Catalogs for You

Write directly to the manufacturers, or use Post Card at P. 52

Free Booklet on Ice and Snow Removal

449 Don't wait until an unexpected storm ices your streets and highways to order your rock salt, advises the MORTON SALT CO., INDUSTRIAL DIV., DEPT. AC-10, 120 S. LASALLE ST., CHICAGO 3, ILL. Instead, order your Morton rock salt now and store it in unused buildings, garages, loading platforms, or outdoors near key traffic points. An interesting booklet on ice and snow removal with rock salt will be furnished on request.

Fighting Fires "On the Move"

450 The Barton-American front-mounted fire pump operates while the truck is moving. Thus, you can kill running grass and brush fires faster, on the move. These dependable, heavy-duty pumps can be mounted at the front of any make chassis. They are described and illustrated in a new folder from AMERICAN FIRE APPARATUS CO., MAIN STREET RD., BATTLE CREEK, MICH.

Steel Water Pipe

451 Elastic, ductile and rupture-proof, National Seamless Steel Pipe is designed to stand up under the pounding vibration of heavy, high-speed traffic and the persistent hammering of fluctuating water pressures. If your city is planning future water main installations, get the full facts on this pipe from the NATIONAL TUBE DIV., UNITED STATES STEEL CORP., PITTSBURGH, PA.

Speeds Material Handling

452 Municipal street departments interested in the economical handling of sand and gravel, and water and sewage treatment plants concerned with the handling of bulk chemicals, should find an easy solution to their problem in a Bosworth Conveyor. A variety of types for both stationary and portable applications include the Bin-Veyor, Moto-Trimmer, Conveyall and Bucket-L-Vator. Get full details from BOSWORTH MFG. CO., MILLS RD., DEPT. M, AVON, OHIO.

Efficient Sewage Treatment

453 Used as recommended, Ennz-Zyme will liquify and digest the accumulated organic solids in septic tanks, cesspools and sewage plant digesters; will aid odor control; and will help restore your sewage disposal system to its original condition. The special formula contains a combination of enzymes plus all of the essential stimulants and co-enzymes and bio-chemicals essential to the proper functioning of sewage disposal systems. It is scientifically formulated by DRY CHEMICAL PACIFIC, MODESTO, CALIF.

Quick Steel Delivery

454 Whatever your city's steel requirements — plates, structurals, bars, sheets or tubes—you are assured fast delivery from JOSEPH T. RYERSON & SON, INC. The company offers carbon, alloy, stainless steels and babbitt metal. For additional details, address the firm at P. O. Box 8000-A, CHICAGO 80, ILL.

(See p. 62 for more Bulletins)

HOLMES-OWEN TRUCK LOADERS

SAVING Thousands of Dollars

for MUNICIPAL Users.

LOWERS COST OF WINTER JOBS
The City of Lansing, Mich., makes excellent use of Truck Loaders during the snow and ice period to speed up work of clearing streets, removal of snow from intersections, bridges, etc., hauling of stock-pile materials and numerous other jobs that offer Big Savings to the city. Note unit loading salt for distribution during ice control.

Cuts JOB COST as much as 50%

Trucks equipped with Holmes-Owen Loaders are today reducing the cost of many jobs as much as 50% and offering users a savings amounting to thousands of dollars annually. The use of this equipment substantially lowers the cost of material handling. It assures faster, more efficient loading and hauling. Saves time, labor and equipment by permitting the truck driver to LOAD, HAUL and DUMP, do light digging, grading and cleaning-up without additional man power or the use of more costly equipment. The Holmes-Owen Loader can be installed on most 1½ to 2 ton trucks. It is hydraulically operated, lifts one-half yard per bucket, loads the average truck in four minutes and can easily do the work of several men. See your dealer or write factory today for literature and prices.

ERNEST HOLMES COMPANY
Chattanooga Tennessee

SAVES $27,000 ANNUALLY... Two Truck Loaders in Amarillo, Texas reduced a street cleaning crew from 15 to 4 men . . . number of trucks needed from 5 to only 2. Mechanization of this work cut labor cost $27,000 per year, released 3 trucks for other use.

CUTS COST ALMOST 50% . . . Extensive use of a fleet of self-loading trucks in Birmingham, Ala. reduced cost of maintenance on streets, parks and other public properties almost 50%. Mechanization of such work as spreading anti-skid material on icy streets, removal of dumpings from street sweepers, etc. offers additional savings in time, labor and equipment.

don't forget... ... to see the new HI-GLO BADGE!

HI-GLO

The badge you can polish, polish, polish. It will never lose its golden color. Ruby colored stone set in the eye of the eagle.

BLACKINTON

DISPLAY BOOTH 81

I.A.F.C. Convention

Miami, Florida—Nov. 12th to 15th

V. H. BLACKINTON & CO., INC.

Attleboro Falls, Massachusetts

Catalogs for You

Write directly to the manufacturers, or use Post Card at P. 52

Self-Closing Waste Receptacle

455 Located at strategic points on city streets, these easy-to-use, self-closing waste receptacles actually invite use, helping to keep your city looking clean and attractive. The sturdy units are designed with stainless steel feet, a smooth exterior surface and a baked-on enamel finish. They are available from THE BENNETT MFG. CO., DEPT. AC-10-56, ALDEN, N. Y.

Installs Pipe Under Streets, Sidewalks

456 The Pow-r Mole, an economical new pipe pusher, will push or pull pipe from ¾ to 3 inches in diameter quickly, easily and accurately. The unit will install service lines under streets, roads and sidewalks, and may be attached to all tractor-mounted hydraulic backhoes. It is fully described in literature from POW-R DEVICES, INC., CLARENCE CENTER RD., CLARENCE CENTER, N. Y.

Sirens for Police, Fire Service

457 This powerful, authoritative siren, combined with an automatically flashing red beacon, quickly clears your path for blocks ahead. The light or siren may be used alone, too, on either police cars or fire trucks. Full details on the Model 20 Sirenlite, and the larger Model 30, may be obtained from STERLING SIREN FIRE ALARM CO., INC., 8 BARTLETT ST., ROCHESTER 8, N. Y.

Sewer Joint Compound

458 The cost of joining sewer pipe is greatly reduced when you work with GK, a positive, permanent, pliable compound made by ATLAS MINERAL PRODUCTS CO., MERTZTOWN, PA. Atlas GK is unaffected by water, sewage, alkalies, salts and acids. It may be used in any weather—summer or winter—regardless of trench conditions. Write for *Bulletin M20-1*.

New "Twist-On-Cover" for Water Meters

459 A sure way to protect your water meters from damaging foreign matter is to provide these new "twist-on-covers," made by METER SPECIALTY CO., P. O. BOX 6003, MEMPHIS 10, TENN. "Twist-on covers" are designed to maintain meters in service, reduce repair costs, and simplify meter reading. They are made to fit both round and straight-reading ⅝-inch Badger, Hersey, Lambert, Pittsburgh, Trident, and Worthington meters.

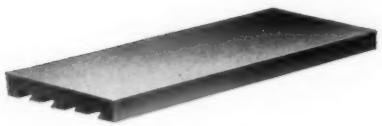
Steel Pipe Used to Melt Ice & Snow

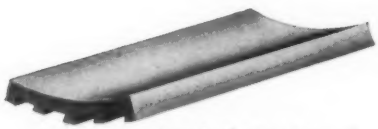
460 Steel pipe snow melting and ice removal systems can be used effectively in many locations, including walks, driveways, ramps, public parking lots, bridges, and loading docks. The steel pipe is buried in the paving material and circulates a warm fluid which melts ice and snow. For detailed information, write the Committee on Steel Pipe Research, AMERICAN IRON AND STEEL INSTITUTE, 350 FIFTH AVE., NEW YORK 1, N. Y.

(See p. 64 for more Bulletins)

Amvit CLAY LINER PLATES *resist abrasion*

provide smoother flow, added protection





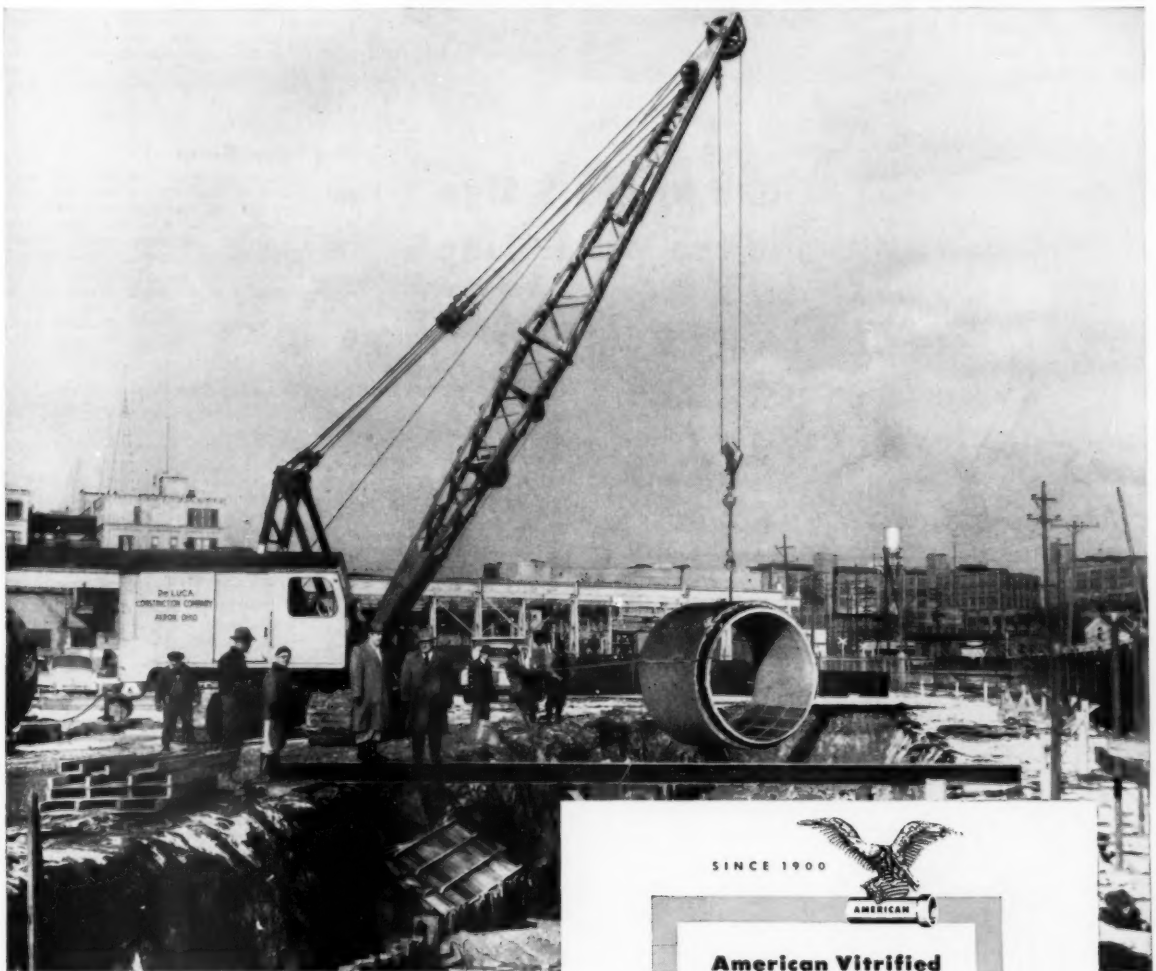
Standard size 9" x 24"
Other sizes upon request

● For *complete* protection of concrete pipe sewers, industrial sewers, culverts, acid vats, sewage treatment tanks, neutralizing baths and laboratory and industrial walls and floors choose and use *Amvit* clay liner plates.

They are specially manufactured to meet all application requirements which entail resistance to acids, alkalies and chemical reaction.

Amvit clay liner plates, hardened, glazed, smooth, acid-proof and durable, permanently bond and lock to masonry and concrete work. They install easily to concrete forms and are sized according to standardized specifications for uniform spacing.

For more information, write or call for our detailed booklet on Amvit liner plates. American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.



102" reinforced concrete pipe lined with Amvit curved clay liner plates being installed in a combination storm and sanitary sewer.

SINCE 1900

AMERICAN

American Vitrified Products Company

CLEVELAND, OHIO

MANUFACTURERS of: Clay pipe, flue liners, clay liner plates and concrete pipe.

Plants Across the Nation...Brazil, Indiana • Chicago, Illinois • Cleveland, Ohio • Crawfordsville, Indiana • Detroit, Michigan • East Liverpool, Ohio Fenton, Michigan • Grand Ledge, Michigan • Lisbon, Ohio • Los Angeles, California • Milwaukee, Wisconsin • South Bend, Indiana • Uhrichsville, Ohio

Fordin' Along...

Recent newspaper articles tell of a large city where the impounded supply is so nearly exhausted that it is necessary to bring in water from a distant river which has a high salt content. The brackish water is so unpalatable that quite a business has developed in the sale of fresh water in half gallon paper containers at 20c each. Few people realize that enough pure, safe water from the average public supply costs each citizen only about a nickel for all he can drink in a year.

One Bright $ Sign in the Water Line

Most operations in the water processing line cost money . . . with little or no opportunity to make them pay for themselves.

One bright spot in the line is the water meter, which measures and determines the income. And when the meter is well set it can earn more by being well protected but still easily available for reading and changing.

Many water utilities are realizing thousands of dollars annually in labor savings and in increased revenues from well-set and well-maintained meters.

Perhaps you, too, can show bigger net profits this inexpensive way.

Send for
Ford Catalog No. 56.

THE FORD METER BOX COMPANY, INC.
Wabash, Indiana

FOR BETTER WATER SERVICES

FORD

Catalogs for You

Write directly to the manufacturers, or use Post Card at P. 52

Make Your Own Street-Name Signs

461 All that is needed to make your own street-name signs quickly and economically is a metal blank and a New Hermes engraving machine. These portable units will engrave on plastics, wood, or metals. Easy-to-operate, they are available from the NEW HERMES ENGRAVING MACHINE CORP., DEPT. 87, 13-19 UNIVERSITY PL., NEW YORK 3, N. Y.

Easy-to-Erect Municipal Warehouse

462 This colorful catalog of industrial and commercial buildings features rigid frame structures of 32 to 80 feet in bays 20 feet long, bow string truss buildings, and the recently developed Stran-Satin metal wall. The buildings are quickly and easily erected, and may be used as warehouses and other municipal installations. Write STRAN-STEEL CORP., DETROIT 29, MICH.

Fast Snow Removal

463 Just a touch of the toe will start the new Gravely self-starting tractor, giving you instant power on the toughest snow removal jobs. The tractor may be used with three efficient tools—a snow plow, snowblower or power brush—increasing its usefulness on a variety of municipal applications. It is fully described in literature from GRAVELY TRACTORS, INC., BOX 73, DUNBAR, W. VA.

Tax Equalization Appraisals

464 High quality appraisals for tax equalization purposes are assured when you rely on the COLE-LAYER-TRUMBLE CO. to do the job for you. This company has over 15 years' experience in the tax field. For complete information, address the firm at 11 W. MONUMENT AVE., DAYTON 2, OHIO.

Embossed Traffic Signs Wear Longer

465 The Miro-Flex Co. has embossed its traffic control signs for greater legibility as well as extra strength. For a free copy of the company's informative catalog of traffic control signs, write THE MIRO-FLEX CO., INC., 1824 E. SECOND, WICHITA, KANS.

Adjustable Valve Boxes

466 Two-piece sliding or screw type cast-iron valve boxes for covering water or gas valves 4 through 10 inches in diameter, and three-piece sliding or screw type units with separate bases, are made by the ALABAMA PIPE CO., ANNISTON, ALA. Write for literature.

Street-Lighting Poles

467 If your city is considering new lighting or relighting, make sure your files contain the latest catalogs describing long-life, low-maintenance Monotube street-lighting poles. These sturdy steel standards are designed for strength, durability, and attractive appearance by THE UNION METAL MFG. CO., CANTON 5, OHIO.

(See p. 66 for more Bulletins)

Greater Traction . . . for all winter work

. . . International® 300 Utility Tractor

Here's a utility tractor with the "beef" you want for rugged winter work . . . leading its field with up to 1,000 pounds greater built-in weight for *ground-grip* to speed up work, *stamina* to stay on the job in any weather.

Amazing Torque Amplifier drive lets the operator increase push or pull-power in any gear without stopping or shifting . . . keeps the independent power take-off at constant rpm while matching tractor speed to work conditions.

Power steering lets him steer one-handed . . . leaving the other hand free to control equipment *on the go!*

Clear snow, a yard at a time with heavy-duty loader and big snow bucket on the International 300 Utility tractor. Or, detach the bucket and use the loader with snow-blade attachment.

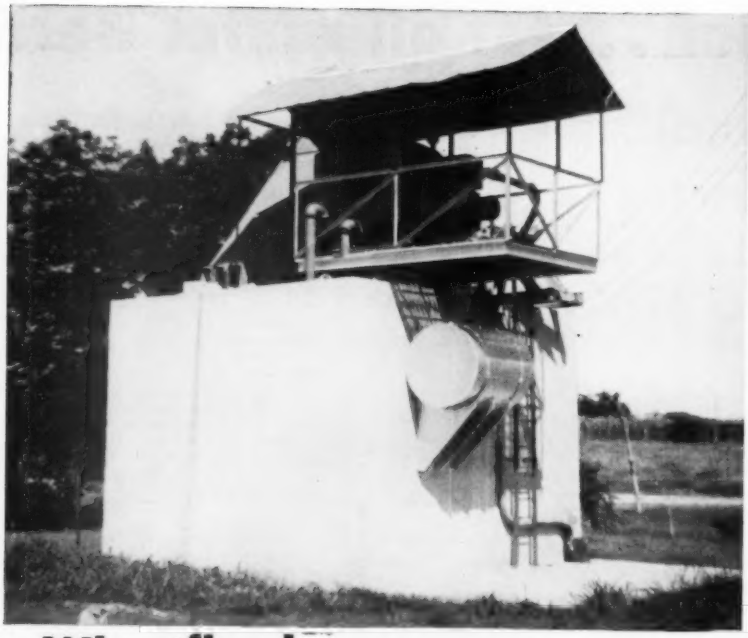
Utility is the name for it! Broom . . . V-plow . . . front, center or rear-mounted blades . . . snow blower—more than 50 items of special duty equipment let you speed up work and cut costs all year long with the International 300 Utility tractor.

Your IH Dealer will demonstrate! Look in the classified directory, phone today. For free, illustrated catalog, write International Harvester Company, P. O. Box 7333, Chicago 80, Ill.

. See your

INTERNATIONAL HARVESTER DEALER

International Harvester products pay for themselves in use—McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Crawler and Utility Tractors and Power Units —General Office, Chicago 1, Illinois



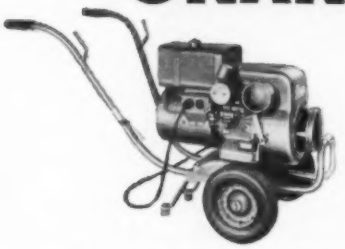
When floods come up and power lines go down... this sewage pump keeps pumping

Flash floods are a constant threat to the San Marcos (Texas) sewage system. On occasions, flood waters flow 15 feet deep over the underground sewage pump. In addition, the floods sometimes interrupt electric power to the pump.

San Marcos' city officials solved both these problems with the installation shown above. The concrete structure bars flood waters from the sewage pump and it also serves as a mounting for the Onan Emergency Electric Plant safely above the reach of flood waters. When power is interrupted, the 50KW Onan Electric Plant takes over the power load . . . supplying current for the sewage pump and other essential uses.

Wherever an essential municipal service depends on uninterrupted electric light or power . . . sewage and water systems, police and fire departments, or civil defense organizations, you can depend on Onan Emergency Electric Plants to keep these services functioning. Available from 500 to 75,000 watts.

ONAN PORTABLE ELECTRIC PLANTS
SAVE TIME AND MONEY



You get jobs done in a fraction of the time when you can use fast-working power equipment in place of hand tools. Onan Portable Plants give you plug-in electricity *anywhere, anytime.* Onan 4-cycle plants feature split-second starting, long-life and dependability . . . with light weight.

Dolly-mounted plant shown is from the 205AJ series . . . 2,500 watts.

Specific information available on every model for every use. Let us know your particular problem and we'll supply the information you need.

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

2566 University Ave. S.E., Minneapolis 14, Minnesota

Catalogs for You

Write directly to the manufacturers, or use Post Card at P. 52

Engines for Every Power Requirement

468 Diesel, Duafuel and Spark-Ignition gas engines, in capacities ranging from 10 to over 12,000 hp, are designed for long, trouble-free operation by the NORDBERG MFG. CO., MILWAUKEE, WIS. Information and specifications will be furnished on request.

Sweeps Snow from Streets

469 Equipped with an M-B sweeper, your tractor is ready to remove snow quickly from streets, sidewalks, playgrounds and parking lots. Brooms 5- and 6-feet-wide are available for mounting on most popular tractors. They are easily removed for drawbar work, and may be used effectively all-year-round. Get full facts from the M-B CORP., 1612 WISCONSIN AVE., NEW HOLSTEIN, WIS.

Storage Tanks for Water or Oil

470 If your city needs a small water storage tank, maximum capacity to 10,000 gallons, or a standpipe to store fuel oils, get the full facts on Columbian bolted steel structures. For *Catalog No. 658*, write COLUMBIAN STEEL TANK CO., 1401-1621 W. 12th ST., KANSAS CITY 7, MO.

Plastic Traffic Markers

471 Some of the country's best groomed transit lanes and airports are trimmed with Miller safety markers. These plastic markers, made of Vanadex, wear longer than ordinary painted lines and are economical, too. They are all precoated for easy installation. For full details, write THE MILLER CO., PAYNE-SHOEMAKER BLDG., HARRISBURG, PA.

Cedar Lighting Standards

472 To light its many parkways, New York City wanted a standard that would harmonize with landscaping and that would be economical to maintain. The choice was Western Red Cedar standards. For a description and specifications, write for *Western Red Cedar Lighting Standards*, a new folder from THE RYTHER-PURDY LUMBER CO., 503 TIFFANY ST., NEW YORK 59, N. Y.

Sweep Streets Cleaner

473 These new rotary street sweeper brooms are made of Rynal Tuf-Grip filament, designed to sweep streets cleaner for more miles and at less cost than is possible with ordinary sweepers. The special filament strips are spaced to get behind leaves, sand, dirt and trash for efficient pick-up action. Get full information on Rynal brooms from the RYNAL CORP., 114 ST. JOSEPH ST., ARCADIA, CALIF.

Installs Pipe Underground

474 A fast, easy way to install pipe under streets, walks, tracks, floors and lawns is to use a Greenlee pipe pusher. With this economical unit, one man pushes pipe under obstacles, without tunneling, backfilling or re-paving. Extensive ditching is eliminated. Write GREENLEE TOOL CO., 2030 COLUMBIA AVE., ROCKFORD, ILL.

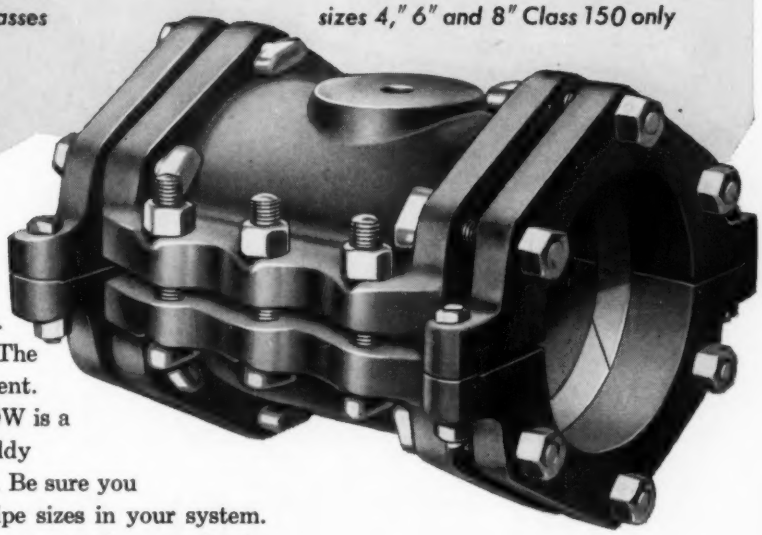
NOW from EDDY...

Mechanical Joint Split Sleeves

for repairing water mains...

CAST IRON MAINS
sizes 3" through 16" All Classes

ASBESTOS-CEMENT
sizes 4," 6" and 8" Class 150 only



Here's the fastest, most economical way to repair damaged water mains. Installation is a matter of minutes. The repair you make is positive, permanent. This is a reminder that RIGHT NOW is a good time to check your stock of Eddy mechanical joint split repair sleeves. Be sure you have some to match each of the pipe sizes in your system. Remember: Eddy repair sleeves come complete, ready for instant use, each with detailed instructions for installing . . . easily, quickly and with no tools other than a ratchet wrench. NOW is the time to order . . . or to mail the coupon if you'd like more information. No obligation, naturally.

Mail Coupon Now
for full facts

EDDY VALVE COMPANY

WATERFORD, NEW YORK

Eddy Valve Company
Waterford, N. Y.
Please send me complete information on Eddy Mechanical Joint Split Sleeves.
(please check which)
For: ☐ Cast iron ☐ Asbestos-cement
Name_____
Address_____
City_____ **Zone**____ **State**____

Changing seasons . . . your for insisting on Four Wheel

Maintenance jobs are as unpredictable as the weather. Every new season brings different jobs, different weather and terrain. That's why highway departments keep depending year after year on Four Wheel Drive!

Unmatched traction for snow plowing and rough off-highway hauling, rugged power for transporting heavy equipment, and faster road speeds that cut trip time . . . you get them all in the new line of heavy-duty FWDs!

FWD

Heavy-Duty Vehicle Specialists

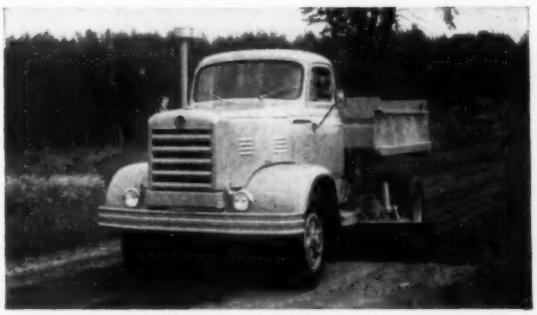
THE FOUR WHEEL DRIVE AUTO COMPANY

best reason Drive!

You need efficiency in these day-to-day truck jobs but you also need a built-in power reserve because *emergencies are routine for you.* Get the truck that's unmatched for emergency duty. Get powerful, versatile new FWD!

SUMMER ENDURANCE You can assign fewer trucks to the job because of FWD's rugged endurance and fast trip time. Easier on drivers, too.

FALL HAULING POWER When you move heavy equipment at the end of work seasons FWD has extra powered axles to increase traction and pulling power.



SPRING ROAD REPAIR The powered front axle makes FWD a fast, efficient grader. Same underbody blade breaks up ice and packed snow in winter.

WINTER TRACTION FWD's special power and weight proportioning gives up to 82% more traction on slippery surfaces, best control in mud and snow.

CLINTONVILLE, WISCONSIN • *Canadian Factory:* **KITCHENER, ONTARIO**

Simplify and save on public works electrical construction . . .

How can you simplify electrical details of a public works project?

By planning an electrical system around the one product line that includes *everything* electrical . . . each product made with the other in mind. That's Westinghouse.

This means perfect integration, freedom from costly fitting on the job. It means elimination of extras and misfits. It results in a finished job that is sound, snug and simple compared to any assembly of miscellaneous brands and qualities.

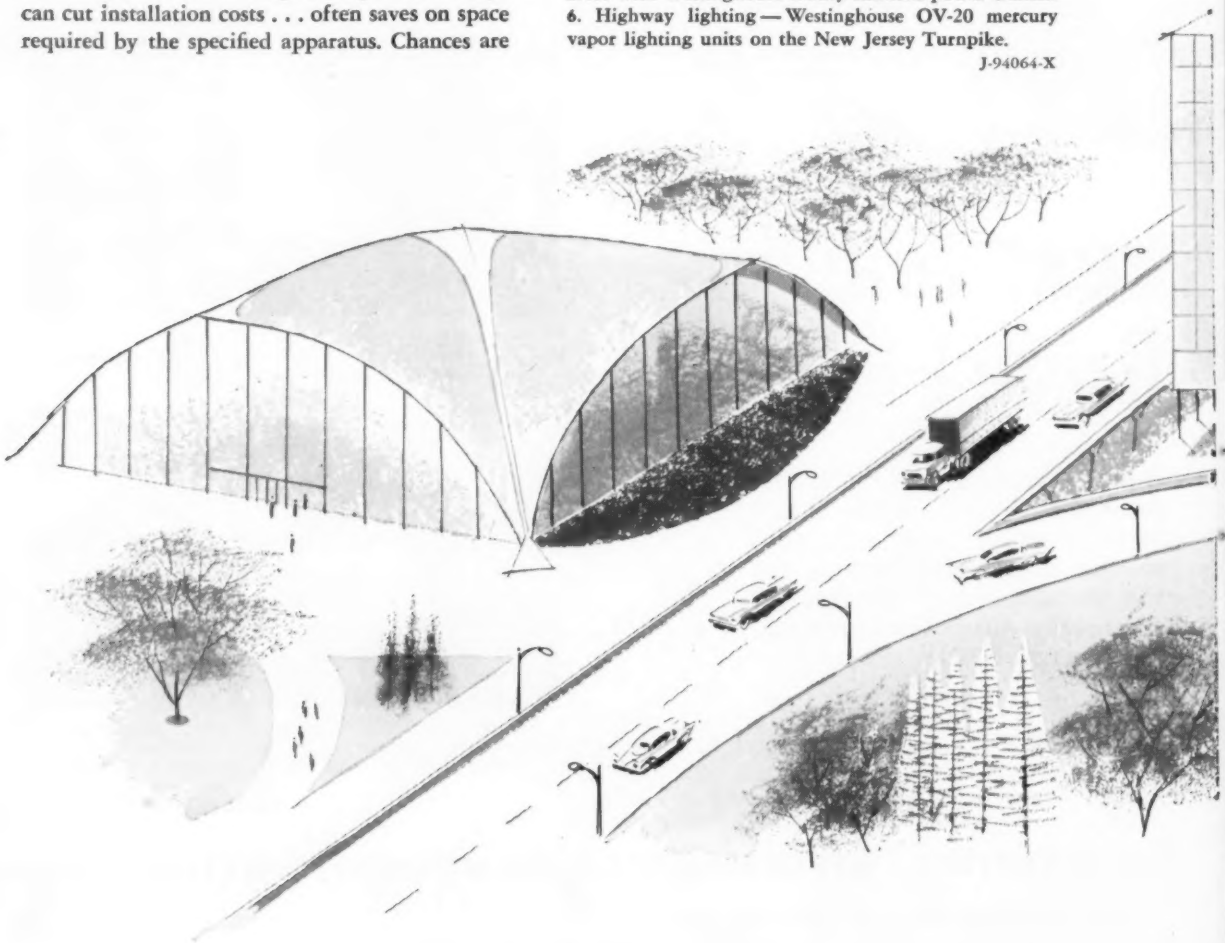
How can you save on such a job?

By using the services of Westinghouse field specialists in planning a system precisely to fit the need. This teamwork approach to the job can mean savings in planning time. Skillful application of the broad Westinghouse product design can cut installation costs . . . often saves on space required by the specified apparatus. Chances are that one of the biggest savings will be most apparent in later years as the expertly planned system proves its adaptability to growth in any direction.

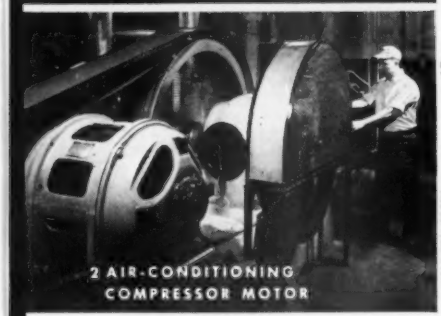
There's a Westinghouse electrical construction specialist as near as your telephone. Call him. He can demonstrate how to simplify and save on your next public works job. Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa.

1. More than 100 motor drives are controlled at the City of Houston Water Works by this Westinghouse control center 2. Heavy-duty Westinghouse motor driving air compressor unit. 3. Motor driving freight elevator at the City of Cincinnati Little Miami Sewage Treatment plant. 4. Low-voltage drawout switchgear in municipal building protects branch circuits and equipment with Westinghouse De-ion® circuit breakers. 5. City of Houston Water Works carries high-voltage power close to load areas with Westinghouse totally-enclosed power centers. 6. Highway lighting — Westinghouse OV-20 mercury vapor lighting units on the New Jersey Turnpike.

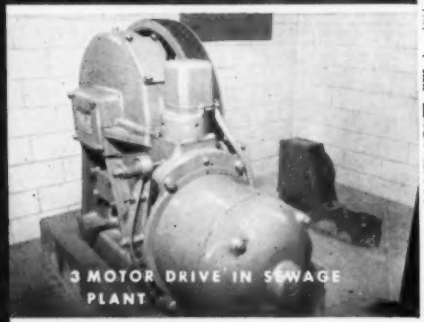
J-94064-X



1 WATER SYSTEM CONTROL CENTER



2 AIR-CONDITIONING COMPRESSOR MOTOR

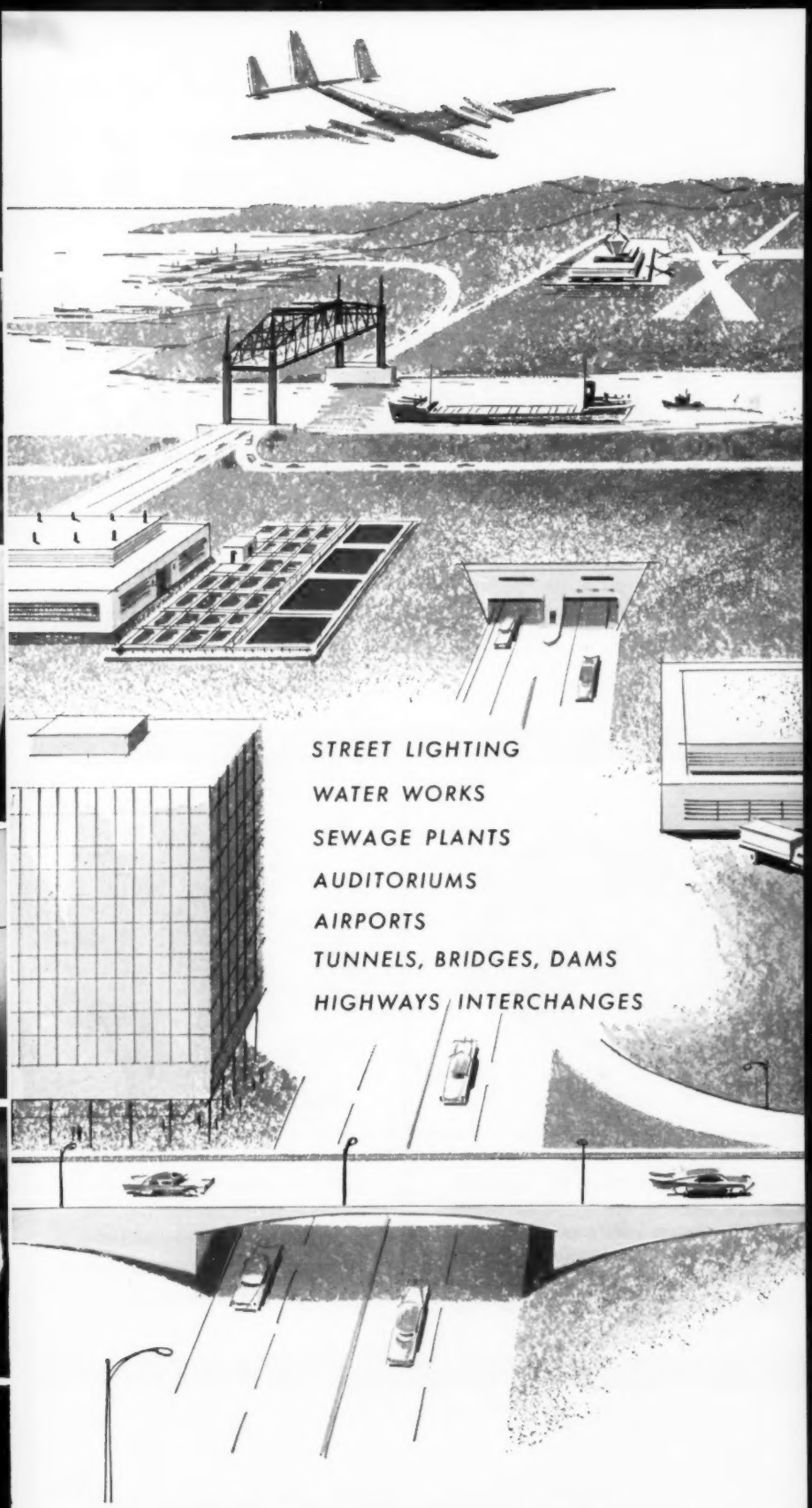


3 MOTOR DRIVE IN SEWAGE PLANT

4 MUNICIPAL BUILDING SWITCHGEAR

5 POWER CENTER IN WATER WORKS

6 HIGHWAY LIGHTING

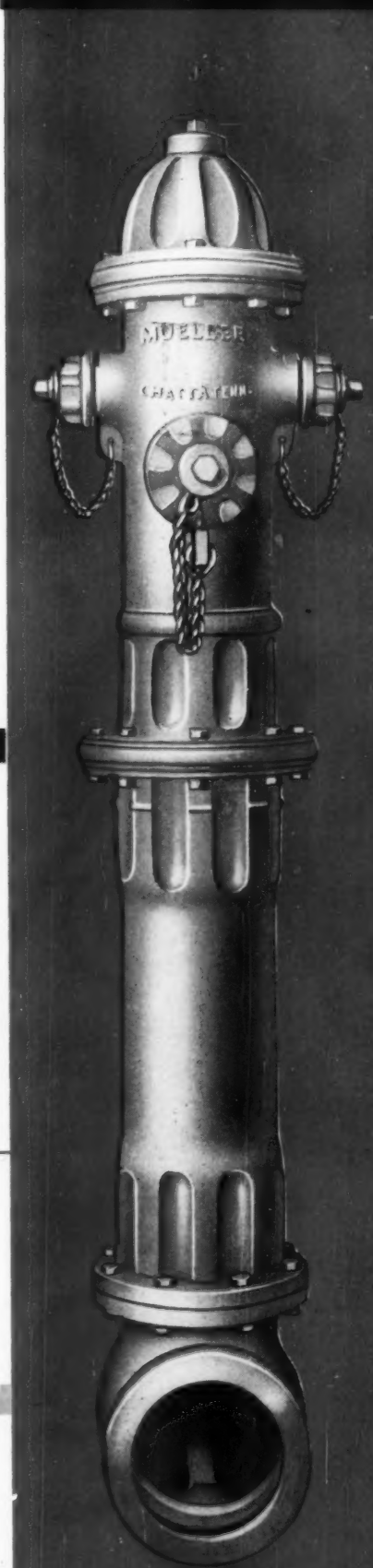


STREET LIGHTING
WATER WORKS
SEWAGE PLANTS
AUDITORIUMS
AIRPORTS
TUNNELS, BRIDGES, DAMS
HIGHWAYS / INTERCHANGES

WATCH WESTINGHOUSE!

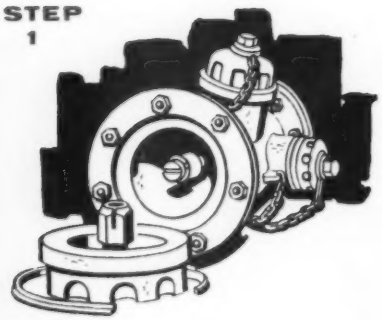
*WHERE **BIG** THINGS ARE HAPPENING **TODAY!***

Always Ready



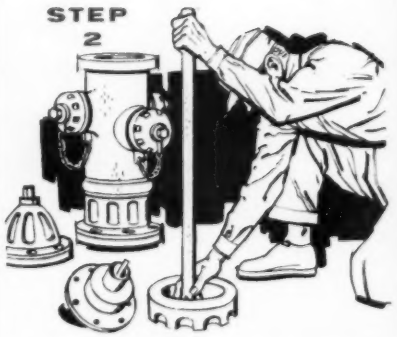
FOLLOW THESE SIMPLE STEPS

STEP 1



Remove broken safety flange from upper barrel section of hydrant. Remove damaged stem coupling and sleeve. Remove bonnet assembly, stuffing box and stem from upper barrel. (NOTE: Before sliding stem out of stuffing box, slip A-24099 brass sleeve over threads to prevent "O" ring damage.)

STEP 2



Screw new safety stem coupling down against shoulder on lower stem. Slip safety sleeve over lower end of upper stem section. Screw upper stem into safety stem coupling until it bottoms against lower stem.

Contact your Mueller Representative or write direct for complete details.

MUELLER®

improved fire hydrant

Designed to withstand the most adverse weather conditions, the Mueller AWWA Improved Fire Hydrant is ready for instant use for emergencies.

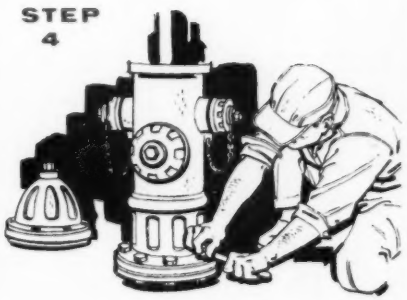
- Large bronze weather cap prevents freezing of operating nut.
- Dry top design keeps water away from threads and bearing surfaces.
- "O" ring stem seals provide perfect watertight seal and hold oil in reservoir, keeping threads lubricated. Safety stem coupling and flange provide simple, fast repair in case of traffic damage.
- Above ground maintenance makes it a simple matter to keep the Mueller Improved Fire Hydrant in an "always ready" condition.

FOR REPAIR AFTER TRAFFIC DAMAGE

STEP 3

Align slot in safety stem coupling with tongue and groove in stems. Screw coupling upward until tongue and groove of stems lock firmly together. Drop safety sleeve down over upper end of coupling and tighten setscrew in sleeve.

STEP 4



Install flange gasket on lower barrel – position upper barrel making sure gasket remains centered. Bolt the two halves of the safety flange in place with circular groove facing upward. Make sure safety flange fits lower barrel snugly.

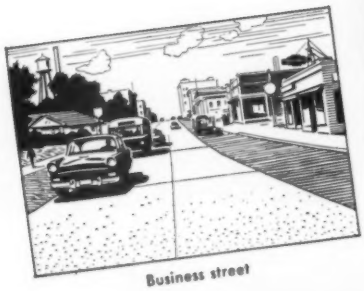
STEP 5

Slide stuffing box over brass sleeve on stem threads. Position stuffing box plate and bolt to barrel. Remove brass sleeve. Fill oil reservoir and replace bonnet. Turn operating nut clockwise to engage stem. Position filler plug over oil reservoir and bolt bonnet to barrel. Repair is now complete.

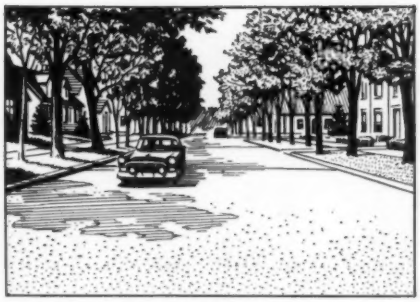
MUELLER CO.

Dependable Since 1857

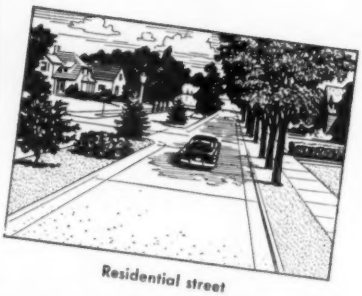
MAIN OFFICE & FACTORY DECATUR, ILLINOIS



Business street



Residential street



Residential street

Fred Wedemeyer, Deputy Director of the Sheboygan Department of Public Works (left) and Robert E. Fleischer, Director of the Department of Public Works placing plaque commemorating the 1,500,000 sq. yd. of concrete streets in the new pavement on 27th Street.

20-year Record in Sheboygan, Wis. Proves Concrete Streets Have Lowest Maintenance

Sheboygan, Wis. paved its first street with concrete in 1911. That street is still in service, still in good condition. Each year since then Sheboygan has added to its concrete street mileage. Today, two-thirds of the city's street mileage is concrete, totaling 76 miles or 1,500,000 sq. yds. of concrete.

Of particular significance is that all the concrete pavement ever built in Sheboygan is still on the job. Not a single block of it has been reconstructed, replaced or resurfaced.

Sheboygan has kept accurate records and therefore has positive proof that maintenance costs are lower on concrete streets. Latest available Sheboygan street maintenance records, spanning a 20-year period, show that concrete pavement cost an average of $105.62 per mile per year to maintain. Two other principal types of pavement average $603.51 and $856.60 per mile per year to maintain. That's 5.7 and 8.1 times more than for concrete streets!

Sheboygan's experience with *low-maintenance-cost* concrete streets is shared by many cities. In addition, concrete usually costs less to build than any other pavement designed for the same traffic, and it lasts much longer. Moderate first cost, low maintenance cost and long life mean *low annual cost.*

Write today for helpful booklet, *"Design of Concrete Pavements for Municipal Streets"*. It's free, but distribution is limited to the U.S. and to Canada.

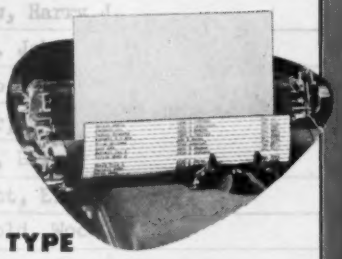
PORTLAND CEMENT ASSOCIATION
Dept. 11-4, 33 W. Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

INSTANT REFERENCE

with

ACME VISIBLE

FLEXOLINE



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ALWAYS READY FOR USE

Only live material being retained, the record is always up to date, with every listing visible, ready for instant reference.

SIMPLE TO INSTALL

Listings are typed on scored FLEXOLINE sheets or rolls, using any typewriter, or tabulating machine printer. After typing, strips are snapped apart and placed in frames.

EASY TO KEEP UP TO DATE

When additions or changes are necessary, new strips may be quickly inserted where they belong and the obsolete strips removed.

A wide variety of units for holding FLEXOLINE frames provide for several hundred or hundreds of thousands of individual records. Let your Acme man show you how FLEXOLINE can save you time and improve your reference records.

DISTRICT OFFICES AND REPRESENTATIVES IN ALL PRINCIPAL CITIES

F

ACME VISIBLE RECORDS, Inc., Crozet, Virginia

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☐ We are interested in Acme Visible equipment for _____ records
KIND OF RECORD

☐ Have representative call. Date _____ Time _____

☐ Send us more information and literature on FLEXOLINE

Company _____ Attention _____

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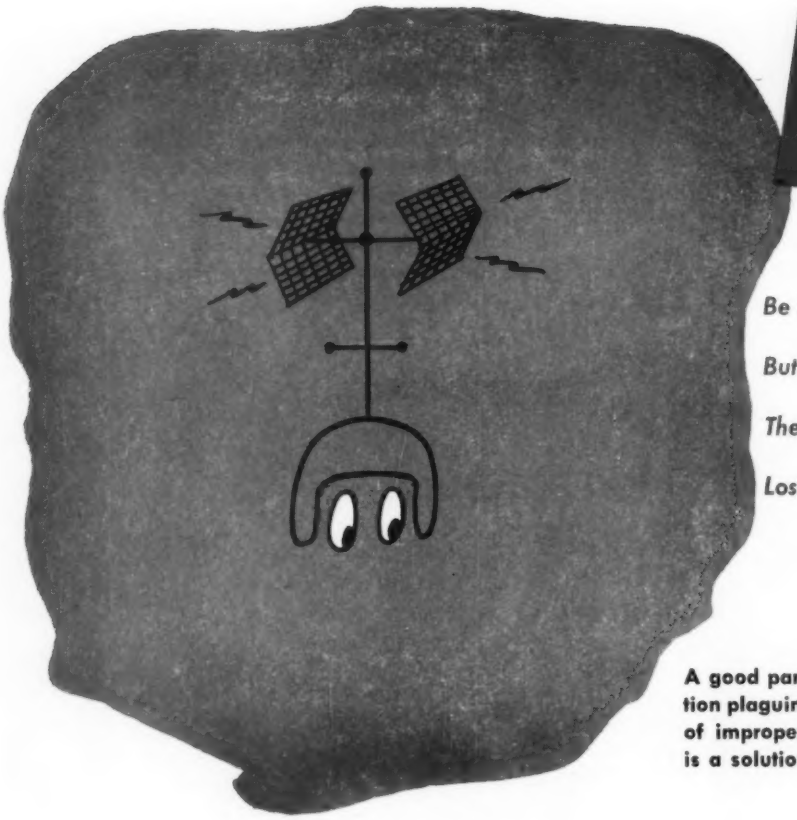


A short and not very technical History of Refuse Disposal

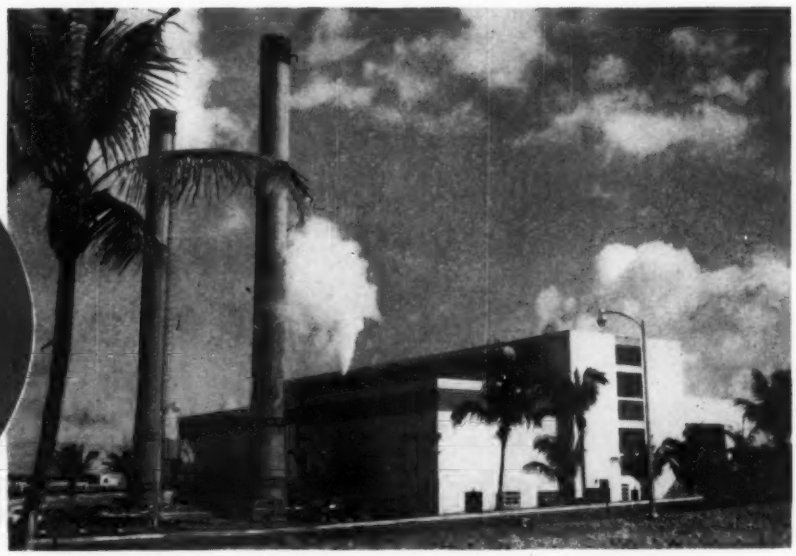
No. 3 of a series

Be it ever so humble,
there's no place like home,
But unless you're equipped
with a new radar dome,
There's always a chance
you'll die of starvation,
Lost in a smog, man's most
modern privation.

A good part of the smog and air pollution plaguing modern cities is the result of improper refuse incineration. There is a solution to this problem, however.

And, in 1956.....

more and more communities are taking advantage of the fact that compliance with the most stringent air-pollution control codes is possible with the Nichols Monohearth refuse incinerator, combined with the Nichols Wetscrub* Fly Ash and Dust Collection System. In addition, waste heat is converted to useful steam, as in the Miami, Fla., refuse incineration plant, shown at right, Nichols Monohearth and Wetscrub equipped.



Consulting Engineers
Maurice H. Connell and Associates
Miami, Fla.

Nichols Monohearth

Mechanically Stoked Refuse Incinerators

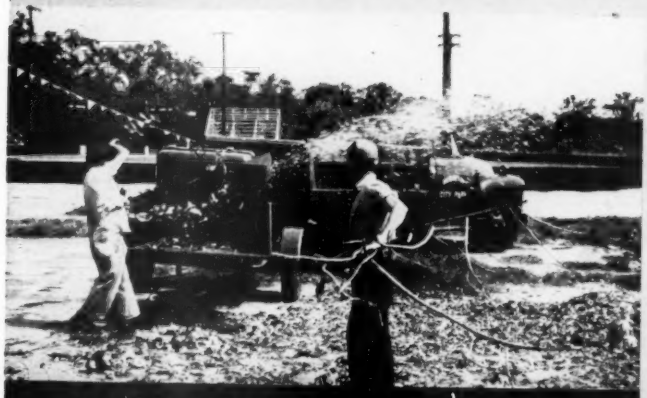
*Patent Applied For

NICHOLS ENGINEERING & RESEARCH CORP. · 70 Pine St. · New York 5 · N.Y.

1637 N. Illinois St., Indianapolis 2, Ind.

1477 Sherbrooke St. W., Montreal 25, Canada

FITCHBURG CHIPPERS cut Brush Disposal Costs 25-50%



Read how Bridgeton, N. J. solved the problem left by Hurricane Hazel — 1000 trees down!

The Park and Shade Tree Commissions
BRIDGETON NEW JERSEY

MEMBERS
HARRY L. WETTLAUFER, President
WILBERT H. DAVIS, Vice-President
HOWARD S. HENDEL
JOHN G. W. KIRCHHOFF
JOHN A. SMYTHE

ALLISON CAMERON, Clerk
HOWARD L. GANDY, Superintendent

June 10, 1955

Fitchburg Engineering Corporation
Fitchburg, Massachusetts

Gentlemen:

The City of Bridgeton has an 1100-acre park, complete with zoo, a raceway, two lakes and a large rhododendron grove.

Hurricane Hazel left our park practically devastated, with a thousand trees down. Our white pine grove was ruined and our picnic areas were a shambles.

Our City Council authorized the purchase of a Model C-612 Fitchburg Chipper, because we were getting nowhere removing the brush from the park.

Since we've had the Chipper we find we can easily chip 8 or 9 truckloads of brush into one dump truck. We've stockpiled the chips and we find that they're in great demand by gardeners and nurserymen, so there's no trouble getting rid of them.

Another thing — because of the feed plate with its safety spring the men can't get hurt by any backthrow from the Chipper.

We save the labor of two men with our Fitchburg Chipper and we have saved several months' time in cleaning up after Hazel. Our Chipper is in frequent use either by us or by the Department of Streets and Roads to remove brush and fallen trees both in the park and along the streets.

Yours truly,

Howard L. Gandy

HOWARD L. GANDY
Superintendent

HLG/sv

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

When you want to cut brush disposal costs, investigate a Fitchburg Chipper. There is a model to fit your specific needs.

City after city is saving many manhours and heavy trucking expense—cutting disposal costs 25-50% with these rugged, well-engineered machines. Only Fitchburg Chippers have the patented Safety Spring action which provides equal ease in chipping all sizes of wood to the machine's rated capacity.

Mahwah, N. J. saves 3 men

"Our Fitchburg Chipper was purchased in May 1954. It will take only a short time to pay for itself. We hired 6 men to cut and clean up brush. Now with the Fitchburg Chipper we only need 3 to do the same work. All brush is cut and chipped the same day. This eliminated unsightly heaps along the roadside. In wooded areas the chips are blown back along the roadsides and serve as mulch for forage."

Hartford, Conn. saves manpower-trucking costs

BRUSH DISPOSAL: "Our Highway Division has used our Fitchburg Chipper to clean up the brush and branches along newly developed road areas. By chipping brush, the city saves in use of both manpower and trucking costs." ROAD CLEARANCE: "If we get hit again by hurricanes or bad wind storms, we now have an excellent piece of equipment that will enable us to readily open up the streets for emergency traffic by reducing the fallen branches to chips."

A word about Sealed Bids—

Know what you are buying! Bids on Fitchburg Chippers are made on a complete machine ready to operate—NOT a stripped-down model with extra costs to come later. Bids will also be made according to the work capacity of the machine as needed for your specific requirements. Price, alone, is often misleading under the sealed bid system.

Send for FREE BOOKLET

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Mass., Dept. AC-116

Send my free booklet, "CHIPPER TALK," with cutaway color drawings and letters from municipalities, commissions, counties, contractors, tree surgeons.

Name_____

_____
(Position or Company)

Address_____

City_____ State_____

Why over 2700 municipalities

Gar Wood-St. Paul dump bodies and hoists can help you handle street maintenance at a lower net cost per payload hour. Gar Wood dump bodies are stress-tested to put strength where it's needed, eliminating excess weight. Strong-Arm hoists are designed for faster, safer dumping . . . smooth hydraulic operation throughout the dumping cycle. Check the complete line!

GAR WOOD INDUSTRIES,

PLANTS IN WAYNE AND YPSILANTI, MICH.; FINDLAY, OHIO;

chose Gar Wood for better refuse collection service!

This year, as in every other year, more municipalities chose Gar Wood collection equipment than any other make! In fact, 1956 has been the biggest year in Load-Packer history, and new Speed-Packers have enjoyed phenomenal acceptance since their introduction last spring.

There are at least 3 important reasons for this overwhelming brand preference. You, as a public official, will be interested in them:

1. ***Gar Wood equipment sets the standard*** for sanitary, low-cost performance. Measure performance any way you like—by sanitation, ease of loading, compaction, complete dumping—you'll find Gar Wood Load-Packers and Speed-Packers way ahead.
2. ***The name Gar Wood means advanced design.*** Load-Packers are the original packing-type sanitary refuse collection bodies. New Gar Wood Speed-Packers are the only continuous loaders that load, crush and compact to give you far greater payloads. And, right now, still another new Gar Wood unit is in the advanced testing stages!
3. ***You can count on lower maintenance costs*** with Gar Wood equipment. Simplified design and rugged construction mean extra long life. All units are fully hydraulic for trouble-free service. And, many Load-Packer and Speed-Packer replacement parts are interchangeable.

Add up these advantages. Then ask your Gar Wood-St. Paul truck equipment distributor for a demonstration on your own routes. You'll see that Gar Wood equipment can help your municipality, like over 2700 others, have better collection service at lower costs!

Gar Wood excavators handle a wide range of excavating and material-handling jobs faster and for less. They're exceptionally easy to convert for use as draglines, trench hoes, shovels, clamshells, cranes, or foundation borers. Also available as a 25-ton truck crane for multi-job mobility. Gar Wood "75" excavators are built and backed by specialists in ¾ yard machines.

Gar Wood-Buckeye ditchers, like the model 407 shown below, are preferred by municipalities for utility work. The 407 is streamlined and compact for work in close quarters. To clear obstructions, you push a button... the conveyor shifts while you keep digging. The complete Buckeye line of ladder and wheel-type ditchers includes a size and type for every municipal application.

INC. Wayne, Michigan

MATTOON, Ill.; RICHMOND, CALIF.

New Mimeograph Rewrites The Rule Book

It's the new A. B. Dick mimeograph, Model 437 — table-top, electric-drive, and what a machine!

Now you can mimeograph on both sides of the paper without slip-sheeting.

You can mimeograph on a wide variety of paper and card stocks in a range of sizes.

You can produce up to 180 copies a minute in 1 to 5 colors.

You can change from black to color ink (or from color to black ink) with no change of cylinder or rollers.

Operating instructions are permanently mounted on the machine with all controls clearly identified.

Here is duplicating at its best whenever there is need for ten to ten thousand copies of reports, surveys, announcements and other written, typed or drawn material. A. B. Dick mimeograph products are for use with all makes of suitable stencil duplicating products.

For more information call your distributor of A. B. Dick products. You will find his name listed under Duplicating Machines in the classified section of your phone book. Or write A. B. Dick Company, 5700 Touhy Avenue, Chicago 31, Illinois.

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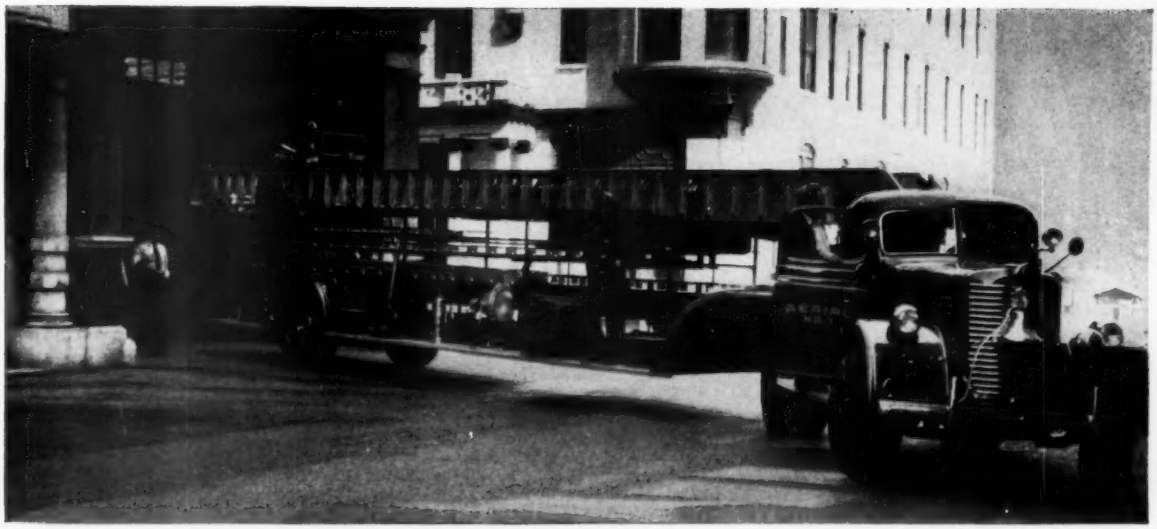
MIMEOGRAPH . . . AZOGRAPH®
SPIRIT PROCESS . . . OFFSET
IMPRESSION PAPER . . . FOLDING MACHINES



Knoxville selects General Electric Progress Line Two-Way Radio System for fire protection

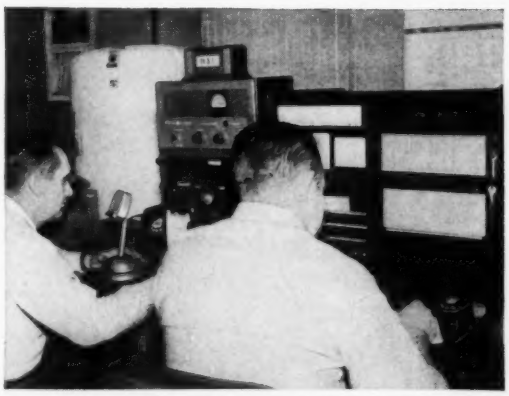
Knoxville, Tennessee, selected General Electric's Progress Line two-way radio for its Fire Department because it offers highest reliability with lowest maintenance cost. High fidelity communication is assured by the controlled reluctance microphones, standard on all Progress Line radios. And only General Electric two-way radios are equipped with 6600 series pre-tested, long-life communication-type tubes.

According to James Swanner, Superintendent of Fire Alarms, solid radio contact can be maintained between his base radio station and that of the Chattanooga Fire Department—114 miles away. He explained that this contact was requested by Civil Defense authorities to tie together fire fighting facilities of the two cities in event of disaster. General Electric Communication Engineers placed the Knoxville base station atop a ridge several hundred feet above surrounding terrain, to assure meeting the CD requirement.

All of Knoxville's fire stations are tied together by the radio system. In addition, 15 engines, a Civil Defense emergency truck, ambulance, and cars of the Chief, Assistant Chief, Superintendent of Fire Alarms, two inspectors, and a mechanic are now smoothly coordinated by two-way radio. This progressive Fire Department has already demonstrated many times how General Electric two-way radio provides improved fire protection for the Knoxville metropolitan area.

* * *

Your use of two-way radio can save money for taxpayers in your city through reduced municipal fire insurance rates for cities with radio-equipped fire departments.

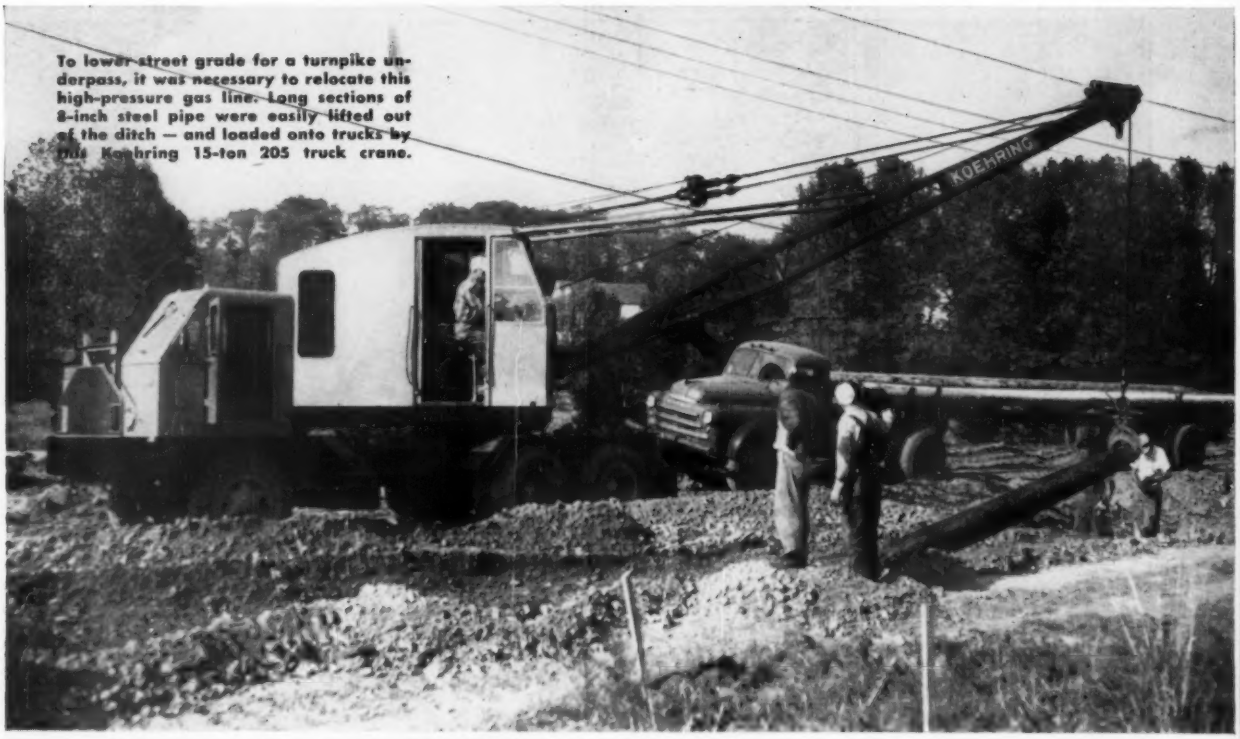


Dispatchers at Knoxville Fire Department Headquarters handle all telephone and two-way radio coordination. All fire station and key vehicles are coordinated via new General Electric two-way radio system.

For Sales and Service...see "Radio Communication Equipment" in your yellow pages. Or, write: General Electric Co., Communication Equipment, Section X10116, Electronics Park, Syracuse, N. Y. *In Canada:* C.G.E. Electronics, 181 Landsdowne Avenue, Toronto.

Progress Is Our Most Important Product

GENERAL ELECTRIC



To lower street grade for a turnpike underpass, it was necessary to relocate this high-pressure gas line. Long sections of 8-inch steel pipe were easily lifted out of the ditch — and loaded onto trucks by this Koehring 15-ton 205 truck crane.

STABILIZE SUB-GRADES — raise sunken sidewalks, street slabs, curbs, gutters, driveways, parking lots, this easy, low-cost way. Inexpensive soil-cement slurry is pumped under pressure into small holes drilled through the pavement. This displaces water, or water-saturated materials — raises the concrete slab — leaves a solid, permanent sub-grade. How can you do it? *Only with a Koehring Mud-Jack.* Two sizes: compact, portable No. 10 for city work (illustrated) — and big No. 50 for highways. Send for catalog today.

. . . . . .

Write: Koehring Co., 3026 W. Concordia, Milwaukee 16, Wis.

Send bulletins on: ☐ Mud-Jack® ☐ 205 Truck Crane

NAME_____

TITLE_____

DEPARTMENT_____

ADDRESS_____ CK671 AC

Mobile, 15-ton lift service

On lifting and material-handling work, where distance between jobs is a problem, take advantage of the speed, mobility, and *extra capacity* of Koehring 205 Truck Crane. It travels anywhere a truck will go — can be 30 miles from here in less than an hour from "now".

With one of these mobile cranes, you're equipped to lift any load up to 15 tons (based on 85% of tipping load). For high lifts, butt- or pin-connected crane boom can be extended from 25 to 70 feet. For extra reach, 15 to 30-foot jib can be added to 65-foot boom. Stability of truck mounting increases the 205's work capacity with every attachment. It handles ½ to ¾-yard clamshell or dragline buckets on a wide radius — converts to ½-yard shovel or hoe.

This heavy-duty 205 also is available as a 15-ton Cruiser® crane, or 10-ton crawler crane — with all standard attachments. On rubber-tired Cruiser mounting, it brings you travel speeds up to 21½ m.p.h. — plus economical one-man operation for both work and travel.

Next time you're in the market for a crane or excavator, look into this 205. See Koehring distributor soon — or mail coupon for latest 205 literature.

KOEHRING COMPANY • MILWAUKEE 16, WIS.
Subsidiaries: JOHNSON • PARSONS
KWIK-MIX • KOEHRING-WATEROUS LTD.

Dig up to 25 feet per minute *with utility-size 155 Trenchliner®*

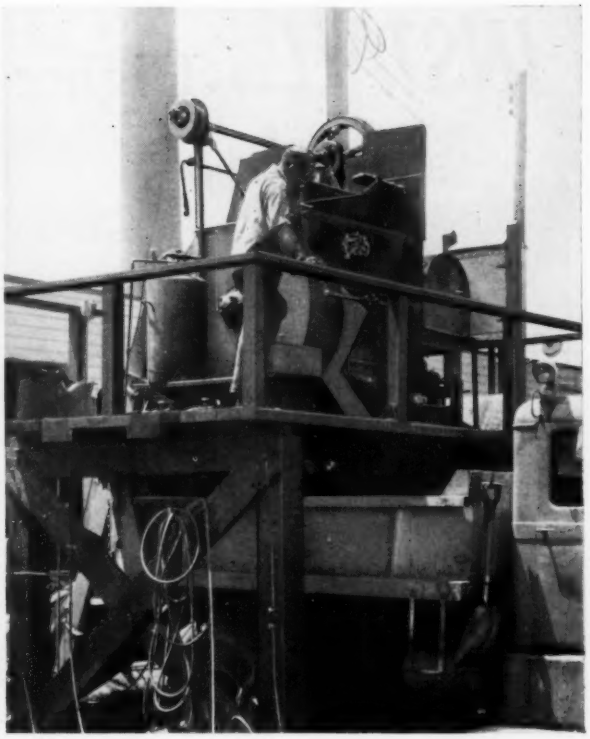
Small in size, big in capacity, Parsons 155 Trenchliner digs 16 to 26 inches wide, at depths to 10 feet. It produces from 5.8 inches to 25 feet of clean-cut trench per minute. Low speeds let the 155 "inch" its way past cross-pipes and other obstructions, typical of city digging. High speeds give maximum feet of trench per minute on clear right-of-way.

Compact, low and narrow

For all its big capacity, working height on this utility-size 155 Trenchliner is only 7 feet-4 inches. It works under trees and other overhead obstructions where larger trenchers can't go. Width over crawlers is only 5 feet-4 inches, for operating between buildings and in narrow alleys. Power-shift conveyor avoids side obstructions — places spoil bank on either side of trench.

Positive, down-crowd boom starts cut fast, holds accurate grade — undercuts walks, curbs, gutters, or makes vertical set-ins. Heavy-duty 155 also has cast-steel buckets, "Tap-In" teeth, tractor crawlers with 16-inch grouser treads, or 12-inch flat shoes. Call your local Parsons distributor today, or write us.

PARSONS COMPANY • NEWTON, IOWA
(Koehring Subsidiary)



Produce up to 30 tons an hour *with Kwik-Mix bituminous mixer*

Here is a low-cost way to produce bituminous mix for walks, parking areas, tennis courts, playgrounds — or make road repairs on busy streets, highways, rail crossings. With a Kwik-Mix 10 or 14 cu. ft. bituminous mixer, you have complete flexibility to meet varying production requirements and job conditions.

Where big daily tonnages are needed, the 10 cu. ft. mixer produces up to 22 tons of bituminous mix an hour — (based on 1½-minute mixing cycle, and aggregates weighing 110 lbs. per cu. ft.) On the same basis, Kwik-Mix 14 cu. ft. mixer produces up to 30 tons per hour.

Mixer sets up anywhere

It's efficient as a mobile rubber-tired unit for making small pours, doing patch-work, or stock-piling cold-mix at various sites. Or, mixer can be set up as a stationary plant in a centrally located area (as shown above). For more information, contact Kwik-Mix distributor, or write for bulletin. Also check Kwik-Mix 3½-S to 16-S concrete mixers, and Moto-Bug® power-wheelbarrow — 2 sizes available with interchangeable hopper, platform, and fork lift.

KWIK-MIX COMPANY • PORT WASHINGTON, WIS.
(Koehring Subsidiary)

INSTALL... Higher Community Morale

Better Community Recreation

with a **Koven** **ALL STEEL swimming pool**

10-YEAR *Guarantee*

SOS

Any Size or Design Pool Can Be Ordered

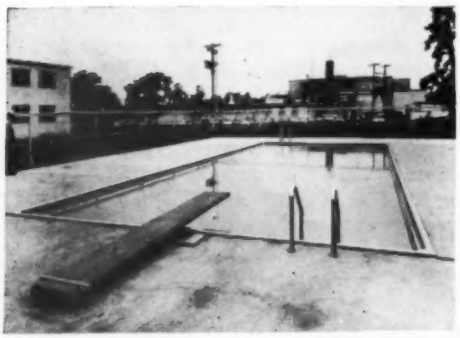
There's no question about the relationship between morale and recreation. They're inseparable. Where you find one you find the other.

The question is . . . how to achieve them in the first place?

Most people know . . . that the surest, safest, most tested means is an ALL Steel Swimming Pool by KOVEN . . . because ALL Steel Swimming Pools by KOVEN provide outstanding values in handsome functional design, in economical trouble-free performance. They serve better—last longer because of their leak-proof heavy welded steel construction—a construction which enables them to remain entirely free from weaknesses common to other types of pools, to operate dependably in severe climates, to require *as little* upkeep as an occasional coat of paint.

Do YOU know about KOVEN pools? You can easily find out (without obligation) by calling or writing for a FREE colorfully illustrated booklet or a consultation with a trained representative.

For any size or type pool you need, KOVEN, a leading steel fabricator for 75 years, will be glad to handle all details of design, construction, and installation.



THE POOL WITH THE LOWEST MAINTENANCE

- THE ONLY LEAK-PROOF TYPE BUILT
- INDOOR AND OUTDOOR MODELS
- 10-YEAR GUARANTEE ON ALL POOLS

Koven STEEL SWIMMING POOLS, INC.

a division of L. O. KOVEN & BRO., INC. Telephone

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PLANTS: JERSEY CITY, N. J. • DOVER, N. J. • TRENTON, N. J.

more yards per load . . . more loads per hour

DIG MORE Powerful pry-out action and 40° bucket tip-back at ground level get full bucket loads with less spillage loss. Power-transfer differentials provide sure-footed traction for digging power.

CARRY MORE Bucket carry position is close and low for maximum stability. Hydraulic system shock absorber cushions loaded bucket—smooths the ride—permits higher carrying speeds with less spillage.

DELIVER MORE Since you get MORE to begin with and keep MORE while traveling at higher speeds . . . with less spillage in both instances . . . the result—you deliver more yards per load and more loads per hour.

Now you have a choice of three sizes of 4-wheel-drive "PAYLOADER" tractor-shovels, each with *all* the more-productive features pioneered and proven by The Frank G. Hough Co.

They have power-transfer differentials—an exclusive "PAYLOADER" tractor-shovel feature that maintains effective traction on mud, gravel, ice and snow.

They have "no-stop" power-shift transmissions and torque converters . . . planetary final drives . . . power-steering and 4-wheel power brakes.

They have the exclusive bucket motion with 40° bucket tip-back at ground level and powerful pry-out action.

For proof of their superior performance and greater productive capacity on *your* job, ask your "PAYLOADER" distributor for a demonstration.

THE FRANK G. HOUGH CO. 3
710 Sunnyside Ave., Libertyville, Ill.

Send full data on 4-wheel-drive "PAYLOADER" tractor-shovels.

- ☐ model HO 2¼ yd. payload; 1¾ yd. struck
- ☐ model HH 1¾ yd. payload; 1½ yd. struck
- ☐ model HU 1½ yd. payload; 1 yd. struck

NAME

TITLE

COMPANY

STREET

CITY

STATE

SAY "HUFF"

PAYLOADER®

MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Town of West Miami Reports:

M-B PACKER BODY CUTS NUMBER OF TRIPS TO DUMP IN HALF!

Since purchasing a 20-yd. M-B Packer Body in May, 1955, the Town of West Miami, Fla. has seen refuse collection costs steadily decrease and the number of trips to the dump cut in half. The Town has had substantial savings in time and money, even when the amount of refuse hauled rose sharply soon after the M-B unit hit the route.

Efficiency of Operation Improves 100%

West Miami has kept a close record of refuse hauling costs. Mr. H. N. Buchner, Town Clerk, reports that a 20-yd. open truck had previously been used for all rubbish pick ups. Cost of this operation skyrocketed as the amount of trash hauled rapidly increased. Town officials contemplated the addition of a second truck and extra crew. Instead, a single M-B Packer with the original 3-man crew was put into service. Efficiency of the entire pick up operation immediately improved 100%! Haul trips to the dump were cut in half and an average $1.75 was saved for every trip knocked off the old schedule. Overtime was eliminated, with their routes of approximately 500 stops being picked up in 6 to 8 hours' time!

"Completely Satisfied"

Mr. Buchner noted his satisfaction with the M-B Body by saying, "The Town of West Miami is completely satisfied with the M-B Packer and feels sure that if the need arose, we would purchase another. I would recommend this body to other municipalities."

M-B Packers can solve your collection problems. A demonstration will prove its value —

- **FAST ON THE ROUTE**
- **SAFEST COLLECTION UNIT**
- **EASY ON TRUCKS**
- **REDUCES OPERATING COSTS**
- **LOW ORIGINAL COST**

Send us your name and disposal problem — we're anxious to help you. M-B Corporation, 1612 Wisconsin Avenue, New Holstein, Wisconsin.

PACKER BODIES • LINE MARKERS • SWEEPERS • PAINTS AND BEADS
M-B CORPORATION
NEW HOLSTEIN, WIS.
MANUFACTURERS OF QUALITY MUNICIPAL AND CONSTRUCTION EQUIPMENT SINCE 1907

a friendly face when you need parking space

Assures more
curb-side turnover
through efficient regulation.

Completely
automatic . . .
you merely insert the coin.
Takes all size coins.
Any quantity . . .
any sequence . . .
all through the single slot.

Ask us for descriptive
and technical details.
No obligation.

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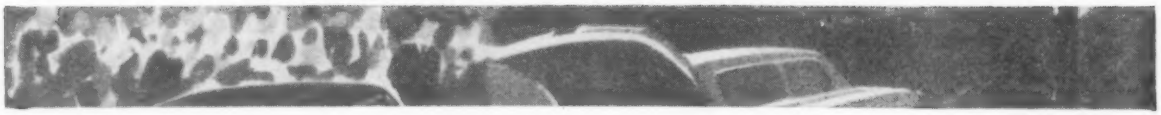
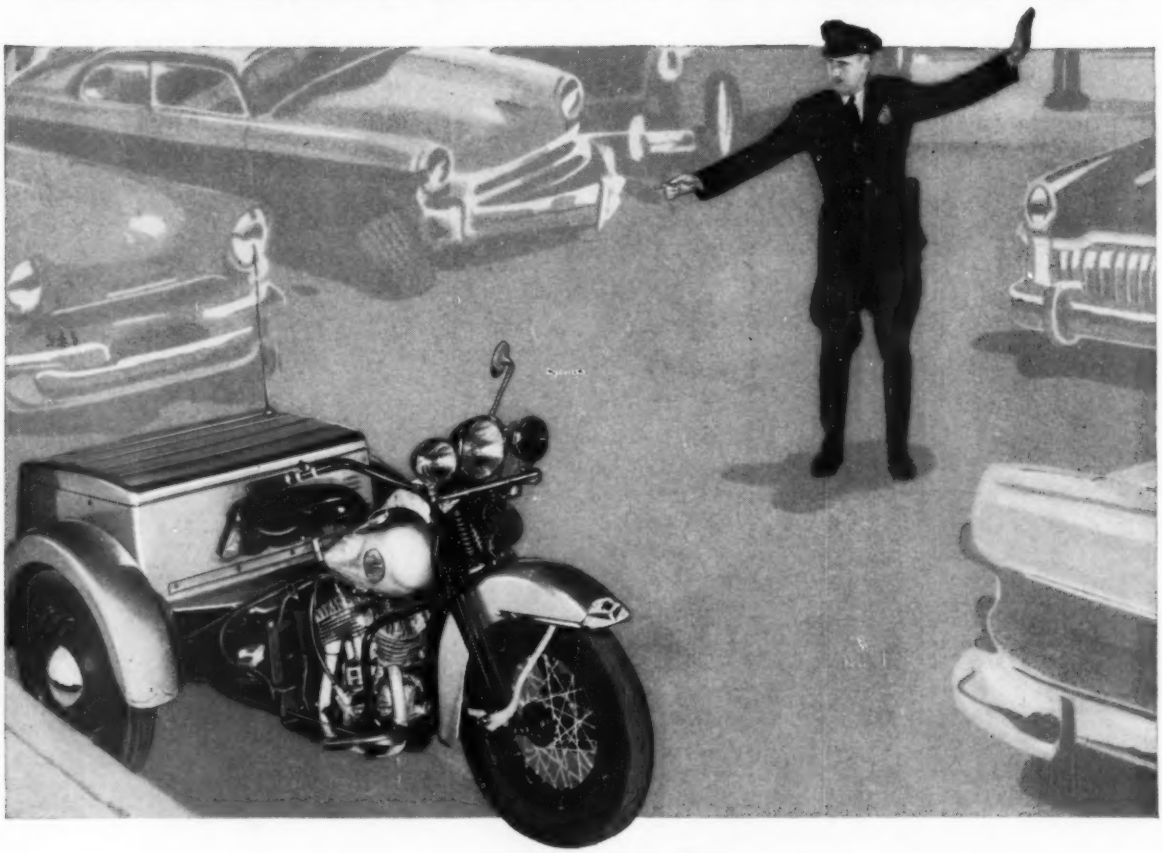


You name it... he does it!



Directs traffic, checks parking, handles pedestrian crowds, paces traffic, escorts VIP'S, patrols residential areas with a HARLEY-DAVIDSON

SERVI-CAR

Practically any police assignment you can think of is completed faster, more efficiently by an officer on a Servi-Car. He has mobility . . . he has equipment-carrying capacity . . . and he still has the personal touch of "the man on the beat."

And with Servi-Car-mounted officers, you have a force that's much more flexible, better able to cope with regular and unscheduled events. HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin.

New free booklet just out...

Write or ask your dealer for your copy of the 16-page booklet — More Effective Round-the-Clock Police Power with Harley-Davidson Motorcycles. It's yours for the asking.

HARLEY-DAVIDSON police motorcycles

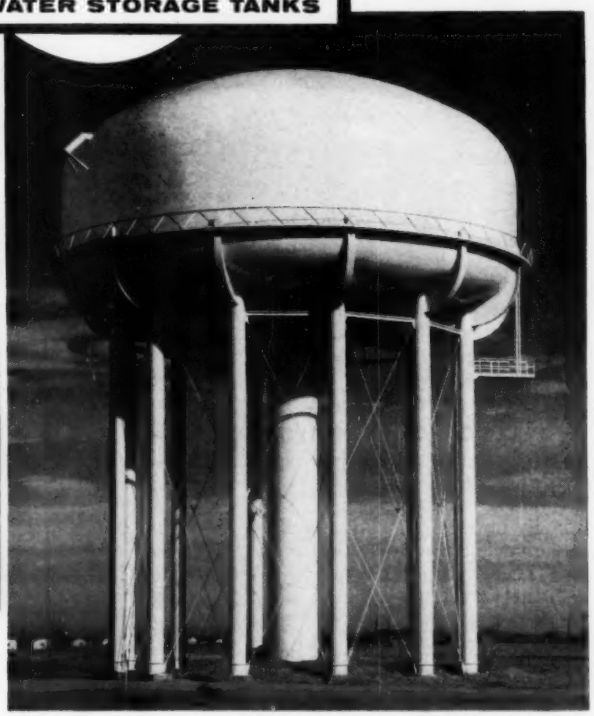
750,000 gallons capacity. Tank diameter 62 ft. Head range 35 ft. Height to bottom 120 ft.

The long and the short of

BETTER WATER SERVICE IN *Pueblo, Colo.*

PDM

WATER STORAGE TANKS



1,500,000 gallons capacity. Tank diameter 88 ft. Head range 35 ft. Height to bottom 70 ft.

Balancing the water service requirements of the City of Pueblo, Colorado, these strategically-located Pittsburgh-Des Moines Radial Cone Elevated Steel Tanks provide, with a 50-ft differential in tower heights, uniform water pressures over a large service area. Dependable supply is coupled with low head-range in this large-capacity tank type. Ask for our latest Catalog covering the complete range of PDM Elevated Steel Tanks.

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Rotary Model 7A-3-22, 3.0 hp, 22" cutting width

HERE'S WHAT CITY OFFICIALS . . . commercial users the country over say about **YAZOO BIG WHEELS:** "The way it will cut high grass is something . . ." "We have big rental projects . . . one of your machines wears out two ordinary mowers." "We believe it to be the best mower on the market at any price . . . " "Better performance . . . longer service . . . easier to repair!"

YAZOO HAS BIG BICYCLE-TYPE WHEELS for smooth, easy maneuverability. YAZOO guarantees longer service with harder use—at lower maintenance cost! YAZOO gives quality at a price . . . performance that can't be matched by any other mower in America. There's no other mower like the YAZOO in the power mower field today!

Write, Wire or Call Today for Catalog, Prices, Complete Information:

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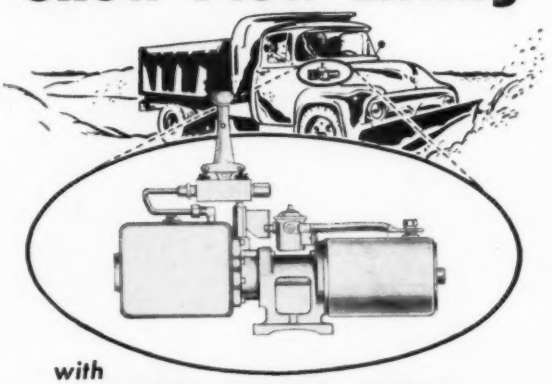
YAZOO (YAZZ-ZOO)
MOWER MOWERS
America's Finest Power Mower

Fast-Automatic Snow Plow Lifting



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MONARCH DYNA-MIGHT POWER HYDRAULIC CONTROLS

Fan Belt or Electric models available for practically all makes of trucks. See your dealer or write for full details.

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All Sizes All Types

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- 386 QUALITY SERGES FROM 12 TO 20 OUNCES
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This seal in the back of the fabric is your guarantee of uniformity and quality.

This seal of certified quality is your protection . . . takes the 'guesswork' out of uniform fabrics.

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UNITED STATES TESTING CO.
SEAL OF QUALITY

EXCLUSIVE...NEW...

International-Drott TD-18

3-yd 4-in-1

It's a 3-yd. Skid-Shovel...

with Drott's exclusive "concrete-shattering," triple-power pry-over-shoe break-out action—and 42° ground level bucket roll-back. Skid-Shovel position also gives you time-gaining, strain-saving load transport on the exclusive Skid-Shoes!

It's a 3-yd. Clamshell...

that "surrounds" loose materials and fills in one fast gulp. And the bottom-dumping clamshell gives you a 2½-foot dumping height advantage over ordinary roll-forward buckets—plus positive, clean-out action even when handling sticky materials!

"FLEET-BEATING PERFORMER"

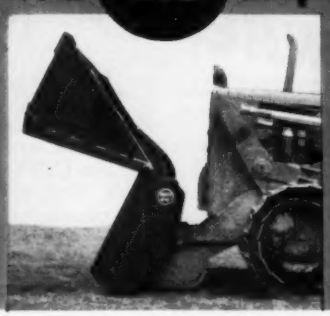
"A new 3-yd. TD-18 4-In-1 Skid-Shovel proved able to do as much work as 3 power shovels and a dragline digging up and loading old concrete pavement on one of my recent highway jobs," reports Henry E. Berghuis, Prinsburg, Minn. "The 4-In-1 loaded up to 1,700 lineal feet of old pavement daily. Using 4-In-1 Clamshell bottom dumping, I also loaded out 4,500 yards of wet, sticky gumbo no other loader could tackle."

NOW.. big-scale four-machine utility!

It's a 3-yd. Bullclam...

that gives you regular "carry-type scraper" action to grade, strip or spread with inch-close accuracy, using clam lip control. *Plus* exclusive Drott Bullclam efficiency on all Sanitary Landfill operations including *positive fill compaction!*

It's a BIG-capacity Bulldozer



with clam lip up, and shoes on the ground, the blade rolls the earth with precision. You regulate dozing depth with ease and accuracy by hydraulic "radius control" of blade pitch (forward and backward).

Touch the new 3-yard TD-18 Four-In-One's machine-selector lever! See how you instantly get any material-moving action you need—from the seat, with finger-tip ease—and stopped or on-the-go. Prove you can beat a fleet of limited-duty rigs with this *versatility unlimited*—get big-income, tough jobs other rigs can't handle! Compare the capacity-adding advantages of Drott exclusives like shock-swallowing Hydro-Spring and heap-keeping, parallelogram raise action. See your nearby International Drott distributor for a TD-18 Four-In-One demonstration. Or try the 1-yd. TD-6, 1½-yd. TD-9, or 2¼-yd. TD-14 Four-In-One!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL HARVESTER

INTERNATIONAL®
DROTT®

See you at the
ROAD SHOW—CHICAGO
Jan. 28-Feb. 2, 1957

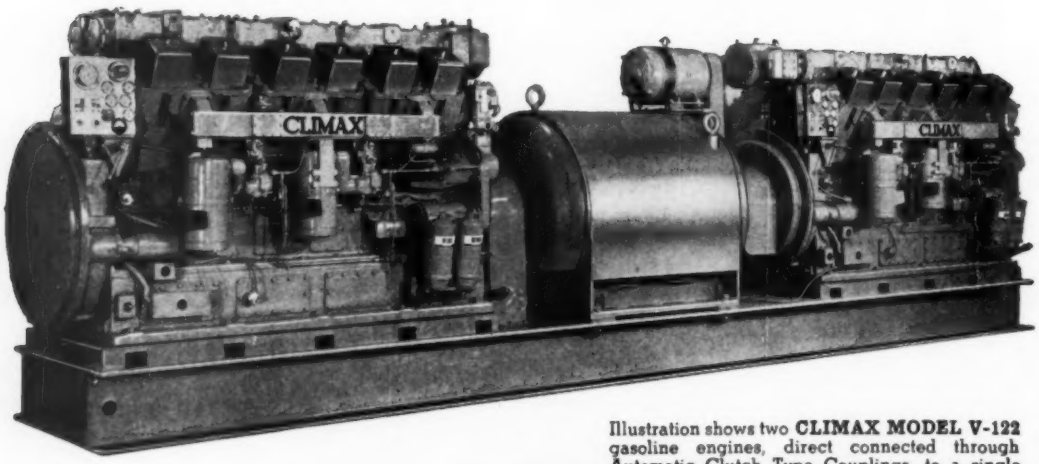


Illustration shows two **CLIMAX MODEL V-122** gasoline engines, direct connected through Automatic Clutch Type Couplings, to a single 625 KVA, 500KW, 1200 RPM, 3 phase, 60 cycle, 2400 volt AC Generator. This unit is installed in the **WASHINGTON TERRACE PUMPING STATION, ST. PETERSBURG, FLORIDA.**

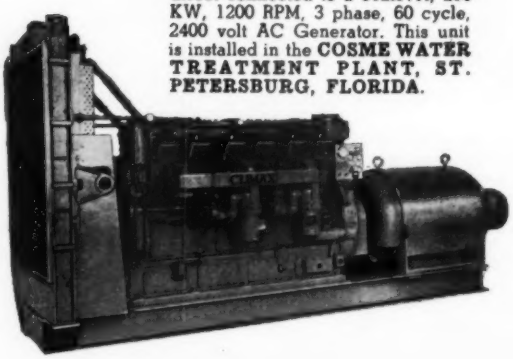
STANDBY PROTECTION WHEN YOUR POWER FAILS

In connection with the modernization and expansion of its Water Works System, the **CITY OF ST. PETERSBURG, FLORIDA** recently installed two Climax engine driven generator sets for use on a standby basis. The **TWO UNITS ILLUSTRATED** are used when normal sources of power are interrupted by tropical storms or mechanical failures.

Each of these generator sets is designed for instantaneous starting, and both are capable of supplying necessary power to operate the motor driven pumps.

Design and construction engineered by Greeley and Hansen, Chicago, Illinois.

Illustration shows one **CLIMAX MODEL V-122** gasoline engine, direct connected to a 312KVA, 250 KW, 1200 RPM, 3 phase, 60 cycle, 2400 volt AC Generator. This unit is installed in the **COSME WATER TREATMENT PLANT, ST. PETERSBURG, FLORIDA.**



climax

ENGINE AND PUMP MFG. CO.

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CHICAGO 4, ILLINOIS
Factory–Clinton, Ia. *District Office*–Dallas, Tex.

DAILY TIMES

WATER USE UP 75% BY 1975!

Competition for water mounts
...ong public and industrial
... and in

Today make sure your community can meet everyone's demands tomorrow

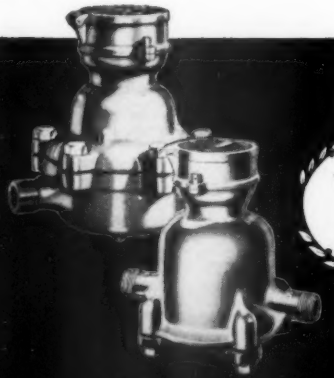
With the water situation already critical in many localities — and competition for water mounting alarmingly among all classes of users — conservation may well be "Operation Survival" for your community. And the first logical step is to set up an accounting of all residential and industrial water use — with Badger Meters.

This precise check sharply reduces water waste, cuts water plant power costs, establishes a fair sharing of water for all, and invariably increases water department revenue... a sound investment in the future.

How critical is the situation? The U. S. Department of Commerce forecasts an increased water demand of 75% by 1975. And the dwindling supply of water could certainly be an acute problem *long before then.*

So make the first strategic move *now.* Let us send you comprehensive literature and, if you wish, set up an appointment with the Badger Meter representative in your area. He will gladly discuss your water problems and furnish complete data on the meters best suited to your community's needs.

Write us today, without obligation.



Water is Vital

Badger Meters have conserved it for 50 years

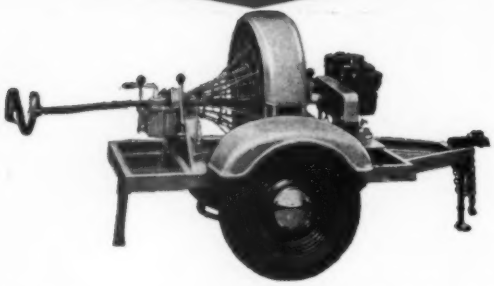
Badger Water Meters

BADGER METER MFG. CO. • Milwaukee 45, Wisconsin

CLEAN SEWERS BETTER, CHEAPER...

WITH O'Brien sewerking®

POWER CABLE-RODDER



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- Exclusive OB power transmission—the secret of handling cable efficiently. Provides forward, reverse and neutral control.
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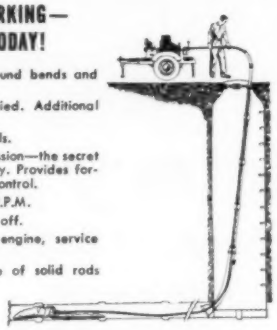
- Throw-out clutch—for on or off.
- Super powered gasoline engine, service guaranteed.
- Adapter available for use of solid rods when desired.



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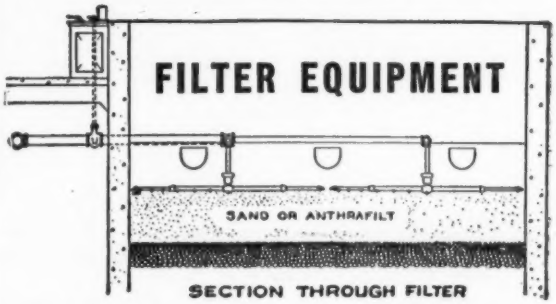
PALMER

FILTER EQUIPMENT



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- Doubles the length of filter runs attainable with sand and quartz media
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- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

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P. O. BOX 1655, ERIE, PA.

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Correctly built in accordance with AWWA specifications. Send us your inquiry, stating capacity, height to bottom and location. Established 1854. Write for *Tank Talks.*

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Established 1854

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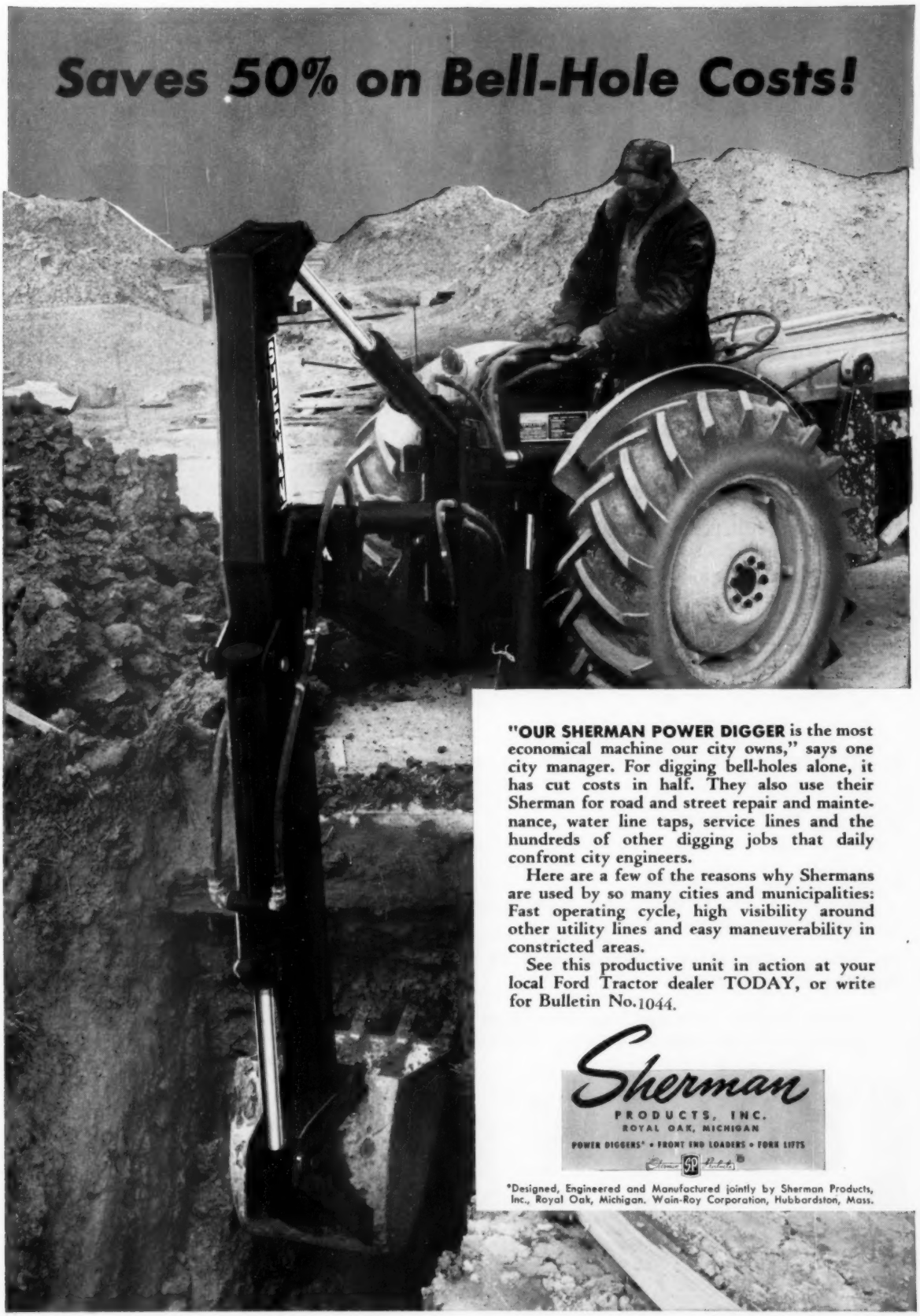
Saves 50% on Bell-Hole Costs!



"OUR SHERMAN POWER DIGGER is the most economical machine our city owns," says one city manager. For digging bell-holes alone, it has cut costs in half. They also use their Sherman for road and street repair and maintenance, water line taps, service lines and the hundreds of other digging jobs that daily confront city engineers.

Here are a few of the reasons why Shermans are used by so many cities and municipalities: Fast operating cycle, high visibility around other utility lines and easy maneuverability in constricted areas.

See this productive unit in action at your local Ford Tractor dealer TODAY, or write for Bulletin No. 1044.

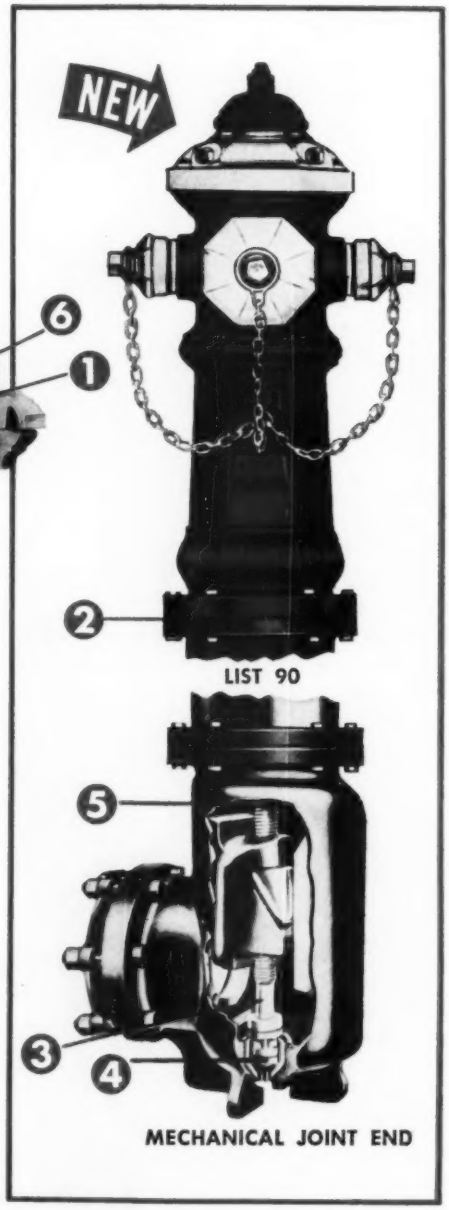
Sherman
PRODUCTS, INC.
ROYAL OAK, MICHIGAN
POWER DIGGERS* • FRONT END LOADERS • FORK LIFTS

*Designed, Engineered and Manufactured jointly by Sherman Products, Inc., Royal Oak, Michigan. Wain-Roy Corporation, Hubbardston, Mass.

A. W. W. A.

HYDRANTS

EASY TO OPERATE AND MAINTAIN



Ludlow hydrants incorporate all the advantages and meet all the requirements for safety, durability and economy.

HERE'S WHY:

1. **POP-OFF SLEEVE COUPLING:** releases hydrant head from stem in event of traffic damage.
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6. **LESS OPERATING TORQUE.** New, non-binding upper and lower "O" rings trap lubricant . . . assure positive water tight seal . . . require no servicing.

THE RESULT: LOW INITIAL COST—YEAR AFTER YEAR—OF TROUBLE-FREE SERVICE.

"NO POSSIBLE DIFFERENCE IN FIRST COST CAN OVERBALANCE THE PERPETUAL ECONOMY OF QUALITY."

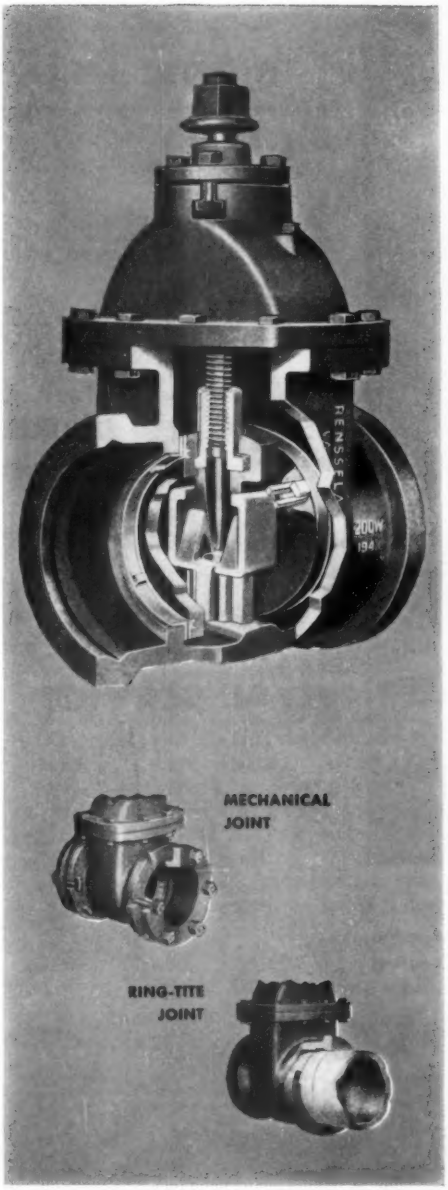
15

Ask for Bulletin 54-H

THE LUDLOW VALVE MFG. CO., INC. TROY, N.Y.

TRADE LUDLOW MARK

GATE VALVES • FIRE HYDRANTS • SQUARE BOTTOM VALVES
CHECK VALVES • TAPPING SLEEVES • AIR RELEASE VALVES



A. W. W. A. VALVES

It costs more to dig up a valve than it does to be sure that the valve is right in the first place. Rensselaer A.W.W.A. Valves have been giving satisfactory service in hundreds of cities for many years, and there are many "reasons why."

The well known Rensselaer wedge mechanism, for instance, presses the gates firmly against the valve seats on closing, but on the first turn of the opening, the wedging mechanism is released and the gates are free.

The generous use of solid bronze, the rust proofing and the simplicity of servicing make for long life and low maintenance. All parts are interchangeable and accurate because of the precision casting and machining.

Only two types of valve ends are shown. All types are available together with tapping valves and other accessories.

The names, Ludlow and Rensselaer mean the same today that they have during your lifetime. The desire to serve the Water Works Field in person—in research and design and in prompt delivery of original equipment and spare parts for all products has not changed. On the other hand, our ability to serve has at least doubled.

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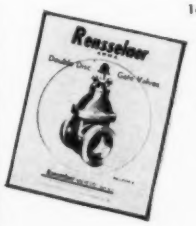
Ask for Bulletin "A"



Rensselaer VALVE CO.

TROY, NEW YORK

DIVISION OF THE LUDLOW VALVE MANUFACTURING CO., INC.

GATE VALVES • FIRE HYDRANTS • SQUARE BOTTOM VALVES
CHECK VALVES • TAPPING SLEEVES • AIR RELEASE VALVES

THIS OPEN DOOR GUARDS YOUR MOST VITAL SERVICE

Water is your community's life blood. Water meters are universally accepted as the fairest way to charge for water . . . and the only way to keep people from wasting water.

But water meters, being fine instruments, naturally lose accuracy after years of wear. They start to give away revenue. They permit leaks and carelessness to creep back, and pumping costs go up. Eventually the water system cannot cope with the growing demand.

Worse yet, lack of proper income makes people hesitant to act, and water shortages may soon become critical.

How guard against this? Pick meters that stay accurate longer. Set up a good testing and repair program.

Walk into your meter repair shop. Talk to the men whose efforts guard your water supply. Ask them which meter gives highest sustained revenue . . . with lowest repair and depreciation costs. We sincerely believe the answer will be "Trident."

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NOVEMBER 1956 The American City

San Juan's Newest Water Supply

New program includes construction of a dam, hydroelectric plant, filter plant, and extensive sanitation program for the protection of the watershed area

By RAFAEL B. URRUTIA
Executive Director
Puerto Rico Aqueduct & Sewer Authority
San Juan, Puerto Rico

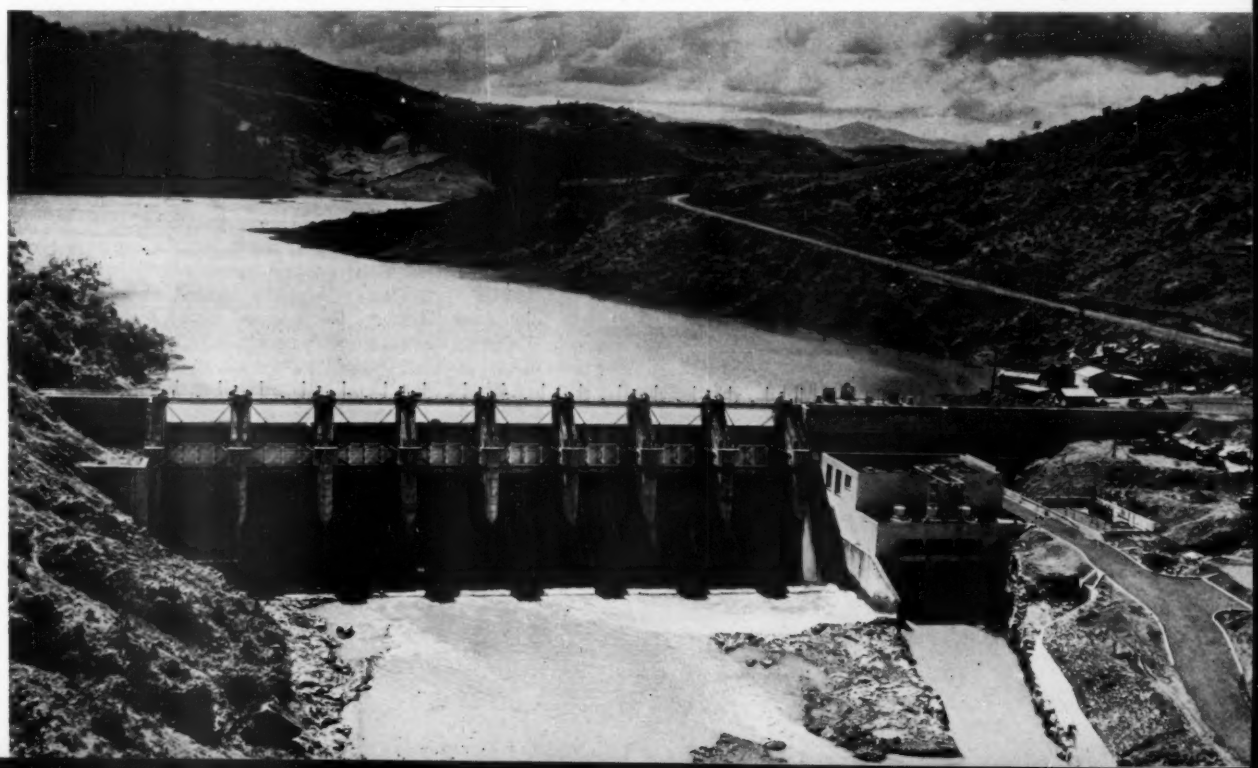
FROM its discovery by Columbus in 1493 until recently, Puerto Rico has had an agricultural economy and a predominantly rural population. Of late there has been a rapid growth of urban population in Puerto Rico, while the rural population remains almost at a standstill. In particular, the San Juan Metropolitan Zone, which is comprised of the ancient capital and 14 surrounding towns, has grown in population and in industry. Approximately 500,000 residents and several hundred industries make up this zone.

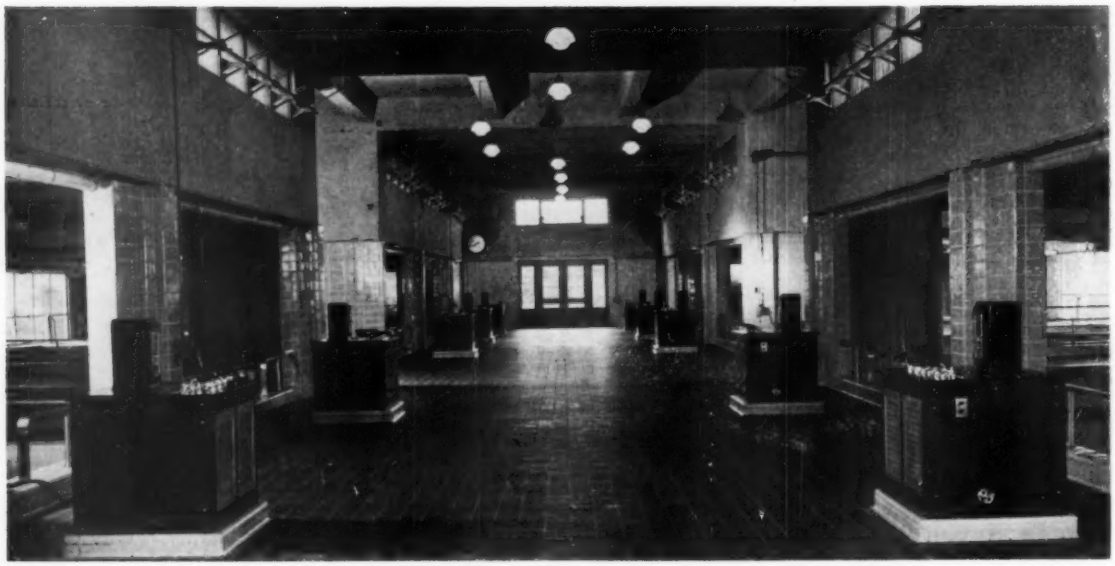
As a result of this urban growth and diversified economy, the provision of adequate public water supplies has been a major engineering problem during the past decade. The Puerto Rico Aqueduct and Sewer Authority, a governmental corporation, owns and operates all the public water supplies and sewerage systems in the island. The Authority, created in 1945, faced a major problem in the San Juan area. The existing Guaynabo supply—an impounded gravity filtered supply—proved inadequate during the drought years of 1947 and 1948.

Sanitation a Necessity

After engineering studies, it was decided to develop a new supply from the Rio Grande de Loiza—largest river in Puerto Rico—which flowed through the outskirts of the metropolitan zone. This integrated development comprised sanitation in the 207-square-mile watershed; construction of a dam at Trujillo Alto; creation of 6½ billion gallon raw water reservoir; con-

The reservoir created by the Rio Grande De Loiza Dam assures a safe yield of 100 mgd. Excess water is used to generate power.





struction of a hydroelectric generating station and water pumping station adjacent to the dam; installation of approximately 3.4 miles of 48-inch Lock Joint concrete pipe between the dam and a new filter plant; and construction of a 30 mgd (million gallon daily) modern rapid sand filter plant.

The watershed included five towns with a total urban population of about 60,000 and two large sugar mills that discharged sanitary and industrial wastes into the river. The Authority improved the sewage-treatment plants of four towns and constructed a new complete treatment plant for the fifth town. It also sponsored a cooperative investigation for the purification of the industrial wastes from the sugar mills. In cooperation with the Department of Health, a program of latrine inspection among the 90,000 rural inhabitants was undertaken.

Hydroelectric Installation

The dam, located at Trujillo Alto within the metropolitan zone, is of the concrete gravity type with eight Tainter crest gates, each 30 feet high by 39 feet wide and weighing 70 tons. The discharge capacity is 192,000 cfs. The 880-foot-long and 106-foot-high structure forms a reservoir having an area of about 1,000 acres and a storage capacity of 20,000 acre-feet. About 13,000 acre-feet comprise active storage above the crest level. The safe yield of the water supply is estimated at 100 mgd.

The dedication of the Loiza Dam marked an important step in the San Juan water supply program. Here the author, Rafael Urrutia, delivers his speech at the dedication ceremonies.

The hydroelectric generating station comprises three Leffel water turbines, Francis type, with General Electric generators, each of 1,000 kw capacity—4,160 volts. The penstocks are 66 inches in diameter and the normal head is 68 feet. All three turbines operate during the wet season of about six months duration. Part of the energy is used for pumping water to the Loiza Filter Plant and the remainder is sold to the governmental electric utility corporation. In the dry season, operation of the turbines depends upon the water level in the reservoir. Sometimes, only one turbine is operated and energy can be purchased from the electric utility, if needed.

A single structure houses the generating station and raw water pumps. Four De Laval centrifugal pumps, two of 10 mgd capacity and two of 15 mgd capacity, pump raw water through approximately 3.4 miles of pipe to the filter plant against a normal head of about 170 feet. The pumps are powered by Electrical Machinery synchronous motors of 350 and 500 hp, respectively. The 48-inch Lock Joint concrete transmission main has a rated capacity of about 40 mgd.

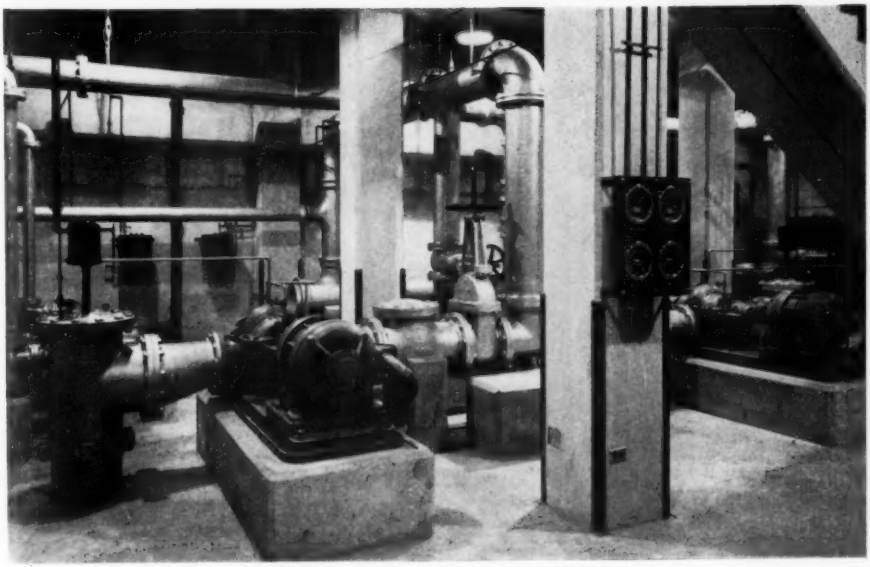
The Loiza Filter Plant is located upon high ground and serves the City of San Juan by gravity. Treatment includes raw water aeration, prechlorination, alum coagulation with rapid and slow mixing of chemicals and water, sedimentation, filtration, and post chlorination.

Raw water enters the plant through a multiple-bank conduit between the settling basins and flows to a battery of spray nozzle aerators located on a false roof above the basins. The aerated water flows from the shallow collecting apron back through another section of the multiple conduit to the rapid mixing tanks. On its way it receives a sufficient dose of chlorine, about 50 lbs. per million gallons, to maintain a free residual of 2 ppm. At the mixing basins, sulphate of alumina is applied to the water and thoroughly dispersed by motor-driven propellers. Occasionally, activated carbon and bleaching clay are applied at this point.

From the rapid mixers, the treated water flows through a third section of the multiple conduit to the Dorr flocculators located at the entrance of the settling basins. Here it is slowly mixed for about 45 minutes by three rows of horizontal paddles, each separated by

Left.
Design features of the Loiza Filtration Plant include provisions for its eventual expansion from 30 mgd to 60 mgd capacity.

Right.
The pump room at the Loiza Filtration Plant. Centrifugal pumps fill the wash water tank and supply water to the surface wash system.



a wooden baffle. The water then enters the settling basins through a slotted wooden diffusion baffle. Four open concrete settling basins operate in parallel to provide a detention period of about 4 hours. At the outlet of the settling basins, the clarified water flows through ports near the top of the concrete end wall into a conduit that connects with a fourth section of the central multiple conduit and leads to the filters.

There are 12 rapid sand filters, each 2.5 mgd capacity at a rate of 2 gpm per square foot. The filters contain 30 inches of sand (.45 mm effective size) and 18 inches of graded gravel. The underdrainage system consists of a false floor of Wheeler bottom construction. Wash water troughs are of reinforced concrete. A surface wash is provided through a system of fixed jets located just above the sand surface.

Each filter is equipped with a Simplex, Type S, rate controller, Kennedy hydraulic valves, and Roberts filter tables with Simplex strip-type filter recorders. Two automatically operated, Allis Chalmers centrifugal pumps fill the wash water tank, a 500,000 gallon concrete structure located on high ground. A rate controller regulates the flow of wash water to the filters. Two Allis Chalmers booster pumps provide water for the surface wash system. They are operated by push button controls mounted on each filter table.

The filtered water receives a small secondary chlorine dose prior to flowing into the clear water reservoir. Hydrated lime is applied to the filtered water to maintain a pH of 7.8. A dosage of sodium silico fluoride, sufficient to maintain 0.8 ppm fluorine, is also applied to the filtered water.

Chemical Feeders

Five vacuum type, solution feed, Wallace & Tiernan chlorinators ranging from 200 to 2,000 lbs. per day capacity add chlorine to the water. Chlorine is purchased by contract in our own ton containers and is stored on creosoted timber racks in a roofed concrete structure adjacent to the chlorinator room. A hoist and monorail system moves the containers to the Toledo platform scales located just outside the chlorinator room.

Dry feeders include six Omega belt-type gravimetric units, each with a capacity of 900 pounds per hour of alum or lime; two Omega Rotolock volumetric feeders for activated carbon, each with a capacity of 100 pounds per hour; and one Omega loss-in-weight gravimetric feeder for sodium silicofluoride with a capacity of 25 pounds per hour. All feeders have extension hoppers to the charging floor above. Dust control filters are provided on the charging floor.

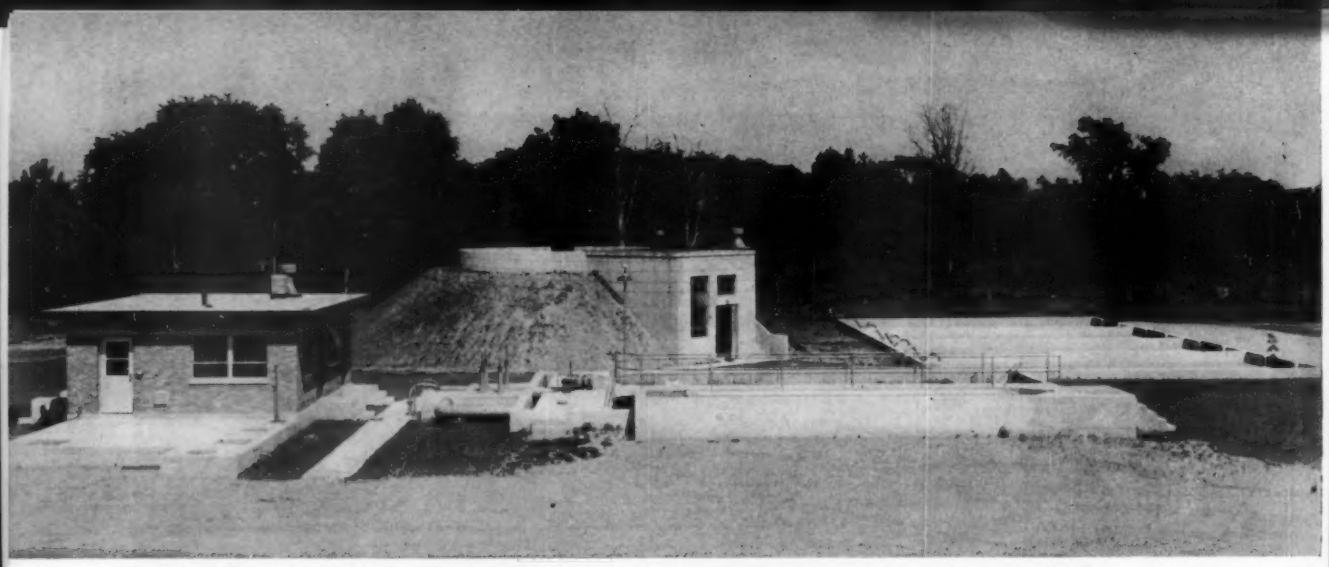
Chemicals are purchased in 100 pound multiwall paper sacks on an annual bid basis. Plant operators transfer the chemicals from vehicles of a contract trucker to the storage room by means of an Otis elevator. Mobile material-handling equipment facilitates chemical handling within the plant.

Plant meters include a 48-inch by 33-inch venturi meter with Bristol transmitter and recorder for filtered water; a 30-inch wash water rate controller with detached dial indicators visible from the filter operating floor; and three 12-inch orifice meters for measuring wash water pumped, surface wash and flushing water. The Simplex Valve and Meter Company supplied the venturi and orifice meters and the rate controller. All these measuring devices have integrators mounted on the master gauge panel on the main operating floor. In addition, there are stage indicators showing the water levels in the wash water tank, settled water basins, and the filtered water distribution tank. Warning lights and alarm bells are on the master panel.

The plant also includes a chemical and bacteriological laboratory for controlling plant operation. Chemical and bacteriological tests are made regularly to insure safety of the drinking water and economy in the application of chemicals.

The filter plant has a capacity of 30 mgd with provisions for its expansion to 6.0 mgd. The firm of Buck, Seifert & Jost, Consulting Engineers of New York, designed the Rio Grande de Loiza project; it was constructed by the Authority for about $11,500,000.

Money was obtained from a $22,700,000 revenue bond issue underwritten in 1949 by a syndicate headed by the First Boston Corporation and B. J. Van Ingen Company. The Chase Manhattan Bank is trustee for the issue. The entire project is self-liquidating over a period of 30 years.



The site of the St. Louis, Mich., sewage-treatment plant provides ample room for expansion, and is well isolated.

Ten to One for Sewage Treatment

A little city boosts its priorities on good municipal sanitation

By DONALD P. ZIEMKE, P. E.
City Manager
St. Louis, Mich.

WITH schools, streets, parks, increased services, and similar programs competing for the tax dollar, one can readily understand the reluctance of many communities to construct sewage-treatment plants as long as "dumping grounds" are available.

In St. Louis, Mich., residents had that same reluctant feeling about sewage treatment. Other projects always had higher priority. A treatment plant could wait, for the city experienced no difficulty by dumping raw sewage into the Pine River. However, once the real importance of the plant was stressed, the picture changed. Shortly after the State Water Resources Commission ordered St. Louis to cease pollution of Pine River, the voters approved a $320,000 general obligation bond issue for construction of treatment facilities by a 10 to 1 margin.

Sewer Construction

This meant an investment of approximately $85,000 to carry sewage to a lift station located about one-quarter-mile from the plant. It also meant an expenditure of $85,000 for the plant itself.

The sewer program also included four river crossings, each emptying into the main interceptor. Because of the many combined sewers, it was necessary to provide storm water bypass facilities at all four crossings. Burr Brothers of Mt. Pleasant, Mich., held the contract for this part of the program.

A $235,000 sanitary sewer extension program, not part of the bond issue, is now in the planning stage. These sewers will accommodate the unsewered portion of the city, and, if at all possible, we hope to complete the program this year.

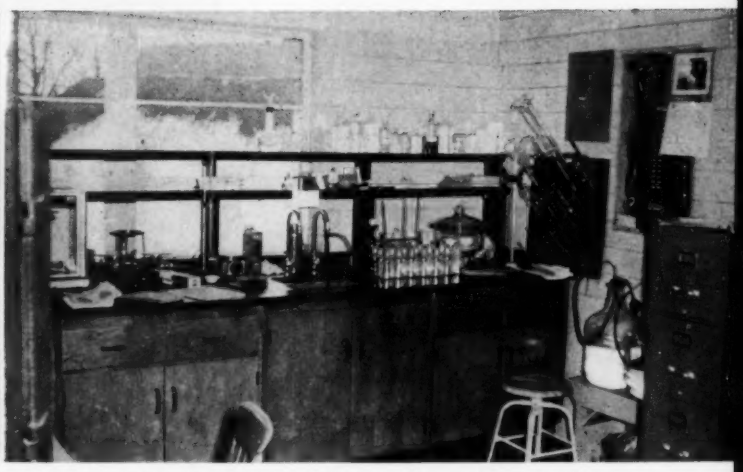
All sewage enters the pumping station by gravity flow, first passing through a small gravel trap and a Worthington "15 B.V.V." comminutor. Three Yeoman vertical pumps then pump the sewage through 1,400 feet of 10-inch cast-iron force main to the treatment plant. The individual units are rated at 350, 800, and 1,200 gpm, and have a maximum output of 2.0 mgd (million gallons per day). All pumps are equipped with Dura-Seal packing glands. They are automatically controlled by a Borg-Warner controller, using eight electrodes in sequence, depending upon the water level in the suction well.

Sluice gates control the flow of sewage entering the pumping station and will bypass the entire flow into the river in case of emergency.

The force main discharges into two grit chambers, each 12 inches wide, 18 inches deep, and 26 feet long, and each designed to handle 1.0 mgd. Proportional weirs at the outlets maintain a velocity of 1 foot per second within design capacity. Sewage can be bypassed around the grit chambers if necessary.

Pre- and Post-Chlorination

The two primary tanks are each 52 feet long and 16 feet wide with a 7-foot average water depth. A prechlorination chamber is located within the primary tank distribution chamber. Both tanks are equipped with Rex conveyor sludge collectors powered by a single motor and speed reduction gear. The tanks also include slotted, movable pipe scum removing troughs, four hydrostatic sludge draw-off pipes, and a total of 64 feet of overflow weir. Detention time using both tanks is 3½ hours at the average flow of 600,000 gpd and about one hour for the maximum plant design flow of 2.0 mgd.



Sewage flows by gravity to this lift station (left), located in a corner of Wheeler Athletic Field about ¼-mile from the plant. Settleable solids, suspended solids, BOD, and other tests are made on raw and settled sewage in this fully equipped laboratory.

The primary tank effluent flows through a 1,500-cubic-foot chlorine chamber, over a 90 degree V-notch weir, into an 18-inch diameter outlet pipe. The outlet pipe discharges the treated waste into the Pine River at a point about 1,000 feet northeast of the plant. Chlorine contact time for the chamber and effluent pipe amounts to approximately 57 minutes for average flow and 17 minutes for the maximum design flow.

Single Digester

One Marlow pump, rated at 175 gpm, transfers the collected sludge from the primary tanks to the digester. The tank is 30 feet in diameter with a 23.5-foot sidewater depth. It has a cone-shaped bottom, Pacific Flush Tank floating cover, and is heated by recirculating sludge through a PFT gas- or oil-fired heat exchanger. Raw sludge is also pumped through the heat exchanger before entering the digester.

The capacity of the digester is about 18,000 cubic feet, or about 4 cubic feet per capita based on the design population of 4,500 persons. A 150-gpm Yeoman vertical centrifugal pump recirculates sludge through the heat exchanger. Flame traps, pressure and vacuum reliefs, pressure regulators, gas meters, waste burner, and drip traps are also provided.

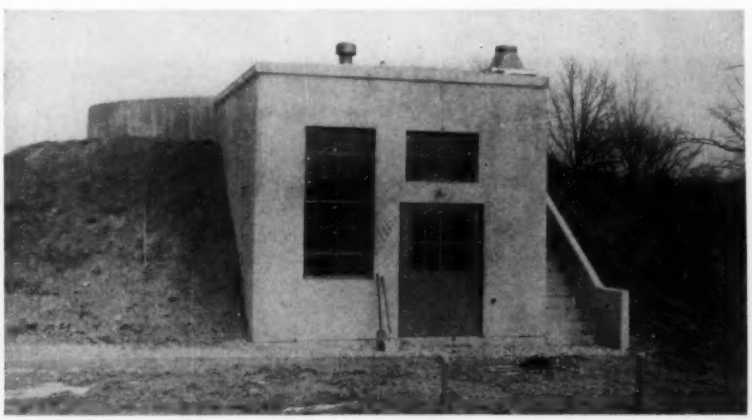
Digested sludge is discharged to one of four sand beds, each 25 feet by 50 feet in size. The gravel and sand beds have a tile underdrain and concrete runways and retaining walls.

The pump house and treatment plant control building are of similar design. They are single-story, flat-roofed buildings constructed of brick and concrete.

The pump house contains the three pumps, comminutor, and controls. The control building includes a chlorine room, fully equipped laboratory, storage room, rest room, and office. The sludge pumps and hot water, oil-fired heating system are located in the basement. Also in the basement is a separate nonpotable water system. The State Department of Health requires a 6-inch air gap between the city water supply and the plant water connections. City water is discharged into an open tank and is then pumped to a pressure tank for plant use. A 2-inch Fairbanks-Morse pump with automatic pressure switch provides this service.

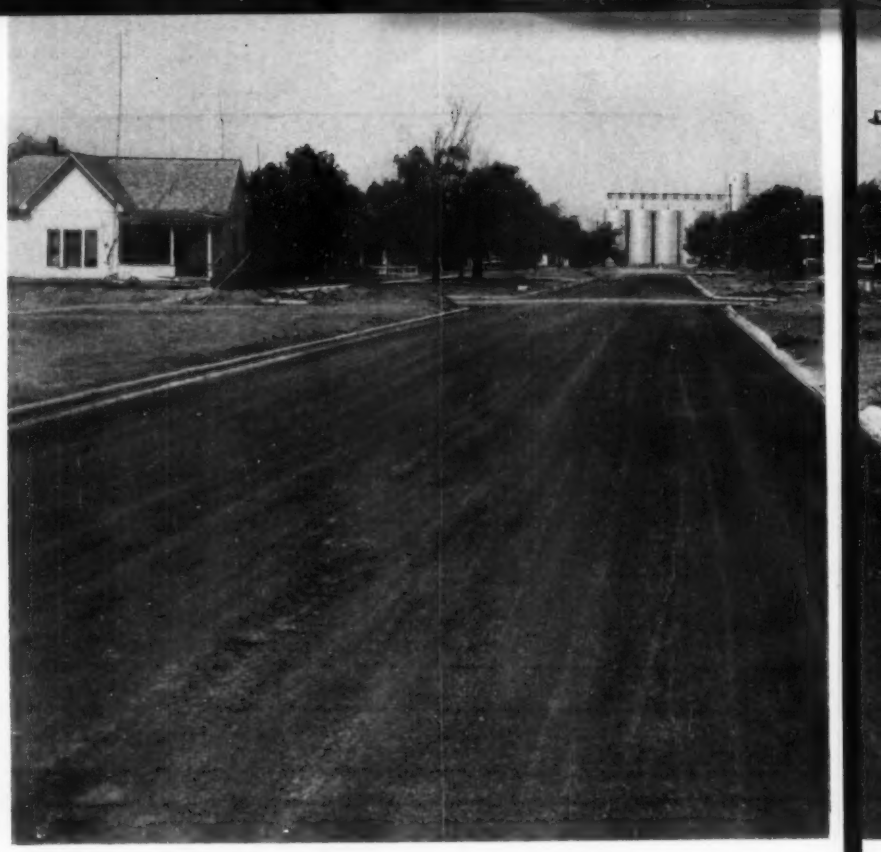
A 200-pound per day Fischer & Porter chlorinator handles both pre- and post-chlorination. We purchase chlorine in 150 pound containers. Plant flow is measured by a Simplex indicating and recording flow meter. The meter is mounted at the chlorine chamber ahead of the 90 degree V-notch weir and the recording instrument is in the laboratory. Inlet air louvers and wall-type exhaust fans provide ventilation to the chlorine room. The entire plant is enclosed by a Cyclone chain-link fence.

Ayres, Lewis, Norris, and May of Ann Arbor, Mich., designed the plant and B. H. Sargent Construction Company of West Branch, Mich., had the contract for the plant and pump station. The plant was designed on the basis of 0.17 pounds BOD per capita for a population of 4,500, 35% more than needed at present. The total cost came to approximately $185,000. Treatment facilities were placed into operation in March of 1956. Howard Bush is in charge.



Digester control building houses the heat exchanger and sludge recirculating pumps.

By LEON CARVER
City Manager
Altus, Okla.



Newspaper publicity and chamber-of-commerce-sponsored forum aids local government in selling programs to the people

Volunteer Cash Paving Program

THE newly elected government officials of Altus, Okla., lost little time in creating what might be called the "new look." In November of 1954 the voters adopted the council-manager form of government and the new five-man council took office in May 1955. The first major project the new administration desired to accomplish was a paving program; but how to do it was the question. These men knew from past experience that assessment paving would not be the answer to a broad-scale program.

After much deliberation, a plan was adopted whereby property owners could pay cash in advance to purchase necessary materials and the city would provide, at no cost to the property owners, the necessary equipment and labor to carry out the paving work. This volunteer cash-paving program was offered to our

Above. Most residential streets looked like this before paving. Residents paid little attention to the maintenance of curb lawns.

Left. Final result—a good all-weather road at minimum cost. Clearly defined curb lines help dress up the neighborhood and encourage residents to maintain curb lawns.

Below. Streets were opened to traffic immediately after the application of a 2-inch wearing surface.

people during January of this year.

The results have been more than gratifying. The minimum amount of paving for any given area was one block, and the requirements consisted of 100% agreement on the part of of all property owners within that block plus an advance cash payment amounting to $2.75 per front foot of property. This figure was based on a careful design and cost estimate prepared by our city engineer, Raymond Fox, Jr. On March 1, 1956, we had collected $115,000 in cash, enough to pave 70 blocks in the residential section of the City of Altus.

Good promotion helped. The local newspaper gave us several write-ups setting forth the details of the program. In addition, the Chamber of Commerce sponsored an open forum meeting at the city auditorium to explain the project and display samples of the proposed pavement. The proposed program soon became the "topic of the day."

It took a little hustling, but by the last week in March we were already at work on the first block of the paving project. The work consisted of excavating the existing roadways to a width of 30 feet and to a depth of 6 inches below-subgrade. We then hauled in and compacted 6 inches of native gravel. Upon this we placed a 12-inch-wide (6-inch gutter apron) curb-and-gutter to form a street 27 feet wide from back to back of curb. Next followed the paving material, a bituminous mix. This was put down in two lifts, a 4-inch base course and a 2-inch wearing surface.

The city awarded a contract to W. T. McGann of Vernan, Texas, to handle all excavation and also con-

Left.
An outside contractor handled the excavation work and curb-and-gutter construction. Here Mayor Claiborne (right) and Ryan Kerr, president of the Chamber of Commerce, look over the job.

Right.
The "Green Monster" and crew wait for another load of material during base coat operations.

struct the curb and gutter. This work was done at a cost of $125 per block for excavation and 80 cents per foot for curb-and-gutter. The blocks are all of the same length—400 feet.

Our street department maintenance crews, under the direction of Street Superintendent C. R. McGee, handled all the work connected with laying the gravel base and the two paving courses. Not a single man had experience with this type of construction before the start of the project. The city engineer, with the assistance of the engineers from The Asphalt Institute and the Anderson Prichard Oil Corporation, designed the cold mix—cold lay asphaltic concrete. The gradations shown in the accompanying table were used.

Gradations of Cold Lay Asphaltic Concrete Used

Total Passing	Base Course Percent by Weight	Wearing Surface Percent by weight
1¼" sieve	85-100	——
¾" "	65-90	——
½" "	50-80	100
No. 4 sieve	35-65	75-100
No. 10 "	20-45	45-70
No. 40 "	10-20	15-30
No. 80 "	5-10	5-15
No. 200 "	0-8	3-8

City trucks hauled the dry material to the paver, a Hetherington & Berner Moto Paver purchased specifically for the project. A conveyor carries the material from the machine hopper to the pugmill where the asphalt is added to and mixed with the aggregate. The asphaltic concrete is then laid to a predetermined thickness, in our case 4 inches for the base course and 2 inches for the wearing surface. Using four trucks, the Moto Paver handled about 80 tons per hour.

We used 3.5% asphalt by weight, using an SS-1 emulsion, for the base course and 6.5% of the same material for the wearing surface. An Ingram 8-ton steel-wheeled roller compacted each course to maximum density. The base course was allowed to cure for two or three days before applying the wearing course.

We find that with the use of emulsion, there is less bleeding during the extremely hot weather months. Also, emulsion requires less storage and heating equipment.

This first program will pave about 20% of the dirt streets within the city limits of Altus at a saving to the property owners of approximately $150,000. Both the administration and the citizens at large are well pleased with the program and we plan on operating a similar project in 1957.

Staten Island Declares War on Mosquitoes

WITH the recent delivery of six Todd Insecticidal Fog Applicators (TIFA), the Borough of Richmond (Staten Island) began its phase of New York's citywide mosquito abatement program.

The Program

The over-all program, sponsored in the Board of Estimate by Albert V. Maniscalco, President, Borough of Richmond, includes the purchase of 12 TIFA machines and the use of three airplanes. Aero Insect Control, Inc., of Cape May, N. J., uses the three planes to spray approximately 15,000 acres of marshland in four boroughs. The fifth borough, Manhattan, has no marshland.

The 12 new fogging machines are distributed according to need and available manpower: Richmond has six; the Bronx, one; Brooklyn, two; Queens, one; and the Housing Authority has two units.

In Richmond, borough crews conduct fogging work between the hours of 4:00 p.m. and midnight, to prevent the harming of bees. During the day, they use the machines to spray catchbasins, pools of water, drainage ditches and similar structures. The other boroughs and the Housing Authority fog during the day.

Joseph V. Spagna, commissioner of purchase for Staten Island, N. Y., explains the fogging procedure to other officials. The old unit, which is at the right in the photo, has been in use for several years.

Health Department funds support the program and field operations are under the supervision of William Sauer, director of the Bureau of Sanitary Inspection. Over-all control is under the borough presidents of the five city boroughs and the Housing Authority.

Commissioner of Borough Works Frank Reilly and Edward F. Tormey, superintendent of sewers, have direct control of the program in the Borough of Richmond.

The colonial architecture of Alexandria's new incinerator is in keeping with the general appearance of the area. Buildings of the new sewage-treatment plant (background) will be similar in appearance.

Alexandria's Incinerator Retains the Colonial Touch

George Washington's home town incorporates functional design with architectural beauty in its new refuse disposal plant

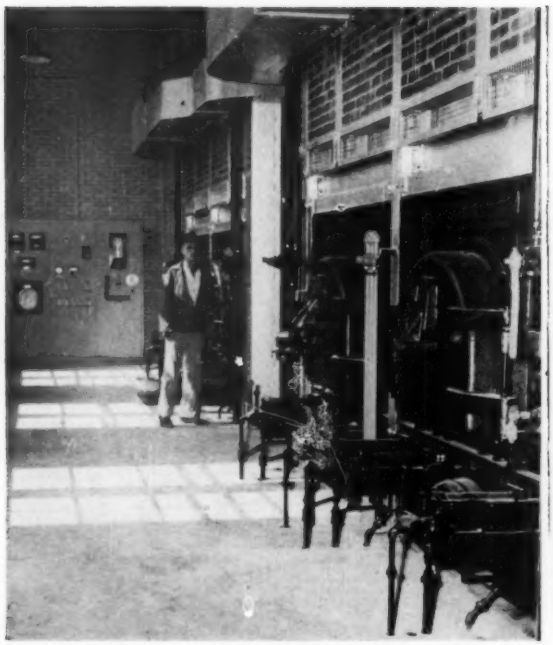
By P. B. HALL
Director of Public Works
Alexandria, Va.

IN 1749 the Legislature of the Royal Colony of Virginia authorized the formation of a town on the west bank of the Potomac River, just south of the point where the Anacostia River joins the Potomac. This town, known as Alexandria, had as one of its original incorporators and landowners, our first President, George Washington. His Mount Vernon estate lies about 10 miles south of the city.

Since 1749, Alexandria has grown from a small colonial town to the fourth largest city in Virginia, now having a population of about 85,000 people. As part of the Washington metropolitan area, it has faced all of the growing pains encountered by rapidly growing areas. The city has grown from a 1940 population of 33,000 people in 7.5 square miles to its present population in 15 square miles.

Up to four years ago, the city disposed of all refuse in an open dump and all garbage was fed to swine by the owners of local hog farms. However, in 1952, an outbreak of disease in the hogs forced State Health Department officials to prohibit the feeding of raw garbage. This action made it necessary for the city to make plans for another type of garbage disposal.

Open dump methods were out, for local residents would not tolerate such unsanitary practices. The best available method was the sanitary landfill, so we started such an operation on land owned by the Southern Railway and located adjacent to the southern boundary of the city. City authorities realized that with the rapid development of the area, it would be impossible to find sufficient land for future operations. Thus plans were made for the construction of an incinerator large enough to handle the refuse disposal problem



Each furnace cell has its own independently controlled stoker system. Control panels are in the background.

in Alexandria for many years to come.

The city retained the firm of Greeley and Hansen, Consulting Engineers of Chicago, to investigate the problem and prepare plans for the construction of a modern incinerator. The engineers submitted a design that has the capacity to handle a population of 125,000 persons (expected by 1989) with provisions for a third furnace to dispose of all refuse until the year 2000.

The incinerator as built consists of two rectangular furnaces each having a 24-hour capacity of 100 tons. It is erected on a hillside site, adjacent to the old open dump, making it necessary to handle the refuse only once by crane. A P & H bridge crane transfers the material from the 1,000 cubic yard storage pit to the charging hoppers. From this point to final ash removal, all material moves by gravity.

Furnace Design

Each of the two 100-ton rectangular furnaces, built by Pittsburgh Des Moines Steel Company, consists of two cells equipped with Flynn & Emrich hydraulically-operated incinerator stokers. While all the cells are interconnected in the furnace area, each cell has its own stoker mechanism that can be operated as a totally independent unit. The overhead hoppers discharge the refuse on the rear or upper end of the grates. Alternately moving sections of the grates transfer the burning refuse to the dumping platform at the front of the furnace. The hydraulically-operated dumping platform drops the ash into the ash pit. Here the ash is quenched with water and dumped into trucks for transport from the plant to the old landfill site now used for disposal of incinerator ash and other nonburnables.

The furnace design is based on 4.33 tons per hour burning rate for a total of 100 tons per 24 hours.

Forced air draft introduced above the fire facilitates burning and protects the furnaces from excessive heat. The air cools the gases and provides additional oxygen for burning the bases above the fire.

Warning Device

An automatic alarm sounds off when the combustion chamber temperature exceeds the desired limit and continues to sound until the temperature again drops to a safe limit. A second alarm installed in the stack warns the operator whenever the density of the smoke passing through the stack exceeds predetermined limits. This alarm promotes better fire control thereby greatly reducing the smoke and fly-ash problem.

The burned gases pass from the furnace into the combustion chambers, through the expansion chamber and out the 175-foot high stack. Each furnace has its own combustion chamber and each chamber opens into a common expansion chamber between it and the base of the stack. We have incorporated automatic or semi-automatic controls wherever possible. Charging, ash and furnace grates are hydraulically controlled and the operation of the two furnaces requires only one man on the charging floor and one man for each furnace.

Special Features

There are several other items of interest in connection with plant design and construction. The incinerator is located adjacent to a new sewage-treatment plant now being constructed by the Alexandria Sanitation Authority. Since this project had already been designed at the time we started our project, using colonial-type buildings, city authorities adopted the same architectural style for the incinerator structure. The colonial-type cupola on the roof together with the bull's eye windows, gives the building a completely different appearance than most incinerator plants.

Economy dictated another unusual feature. The proximity of the sewage-disposal plant, with its large quantities of effluent available at small cost, led city officials to request that provisions be made to utilize this effluent in the ash quenching system. This will eliminate the use of more costly city water normally used in the quenching process. This feature is not in operation at present for the sewage-treatment plant is still under construction. However, we do expect this feature to save a good sum each year.

Operation

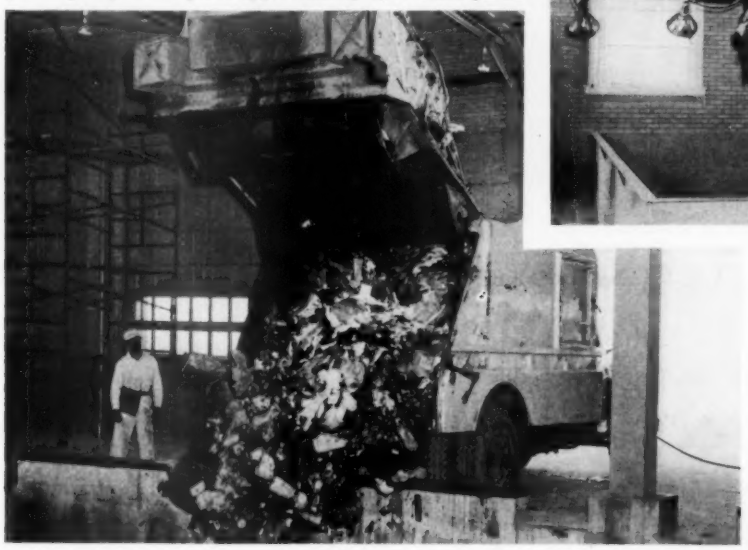
The incinerator began operations on a part-time breaking-in basis on June 1, 1956 and is presently operating two 8-hour shifts per day. Our total operating force consists of 17 men, including the superintendent, night foreman, night watchman, maintenance man, and janitor. C. T. Struder, the superintendent of the Sanitation Division and Robert Mangum, Sanitation and Service engineer, exercise direct supervision over the entire operating force.

All trucks are first weighed on a Fairbanks-Morse scale located just inside the plant property. The scale house, a part of the main structure, is so located as to permit the scale operator to view the trucks as they drive onto the scale platform. An electronic device records the weight and punches a ticket.

The trucks then discharge their

Right.
A bridge crane transfers rubbish from the storage pit to the charging hoppers. Note the size of the hopper as compared to the crane bucket.

Below.
A Gar Wood refuse truck dumps its load into the storage pit. Capacity of the pit is approximately 1,000 cubic yards.



loads into the storage pit through one of four doors. The overhead crane transfers the material from the pit to the charging hoppers.

Early Complaints

When operations first got under way, we received numerous complaints from adjoining properties regarding the amount of fly ash being discharged from the stack. The installation of additional low baffle walls and checker walls in the combustion chambers corrected this situation and the latest indications are that the majority of complaints have been eliminated.

We conducted a one-week test in August. On each day of the test, the furnaces exceeded their rated capacity by some 10 to 33%, with the test average showing a burning rate of 126% of rated plant capacity.

From the standpoint of ease of operation and ability to reach rated capacity, there is no question that the type of furnaces used exceed all expectations of city officials. It now appears that the addition of a third furnace will not be required at the time originally contemplated and that the two furnaces now in use will be able to handle the city's refuse needs for many years to come.

Construction was broken down into three contracts. The building cost approximately $456,000, the stack $55,000, and the furnaces $235,000. The City of Alexandria issued general obligation bonds in 1952 to cover incinerator construction costs.

The incinerator, and the new sewage-treatment plant being built alongside of it, will eliminate many of the city's unsanitary conditions. Efforts on the part of the City Council and the Administrative Staff over a number of years resulted in the construction of the new plant.

Leroy S. Bendheim is mayor and head of the City Council while E. G. Heatwole is city manager.

Urban Renewal Agency Head Resigns

JAMES W. FOLLIN, the first man to head the Urban Renewal Administration, resigned from his post as Commissioner recently.

Mr. Follin became the country's first Urban Renewal Commissioner in 1953 when the Division of Slum Clearance and Urban Redevelopment was established as the Urban Renewal Administration following a broadening of the federal program for slum clearance. During his tenure he saw a continued expansion of urban renewal activity and, recently, under his direction federal procedures for urban renewal were simplified in order to facilitate and speed up local renewal programs. He brought to the field a wide background gained from long service in the municipal and public works field.

During the past summer, Mr. Follin, by appointment of the State Department, represented the United States at a seminar of urbanization held in Bangkok, Thailand, under the auspices of the Economic Commission for Asia and the Far East and the United Nations and UNESCO.

Mr. Follin has spent more than 40 years in engineering and administrative work in government and industry. Before becoming Urban Renewal Commissioner, he served as deputy administrator of the Federal Works Agency, and has also served with the Pennsylvania Department of Highways, the Federal Home Loan Bank Board, and the Producers Council. He will enter private consulting business in Washington.

Latest 100-foot aerial ladder truck built by American LaFrance and one of two delivered to Miami this year.

Palm Trees--A Tropical Moon--

The Fire Department has really had to sprint to keep up with the general growth of the City of Miami. Eight years ago the Fire Chiefs conventioned here—and now they find 285 more firemen, $1,780,000 more budget money, but 16 fewer weekly working hours.

By NEWTON L. WHEELER, *Chief Division of Fire, City of Miami, Fla.*

THIS month we are host to the 83rd Annual Conference of the International Association of Fire Chiefs, being held November 12-15. The fire chiefs met in Miami once before, for their Diamond Jubilee in 1948. Those who have returned may well be surprised to find Miami part of a metropolitan area. The city is not only a tourist mecca but the year-round home of over 720,000 residents. It is a place where 3,500,000 people spend $500,000,000 annually.

The Miami Fire Division has had to expand tremendously to meet the needs of such rapid community

What Miami Fire Division Likes in a Pumping Engine

Open cab seating 3, conventional
Safety belts in cab
750-gpm pump
300-500-gallon booster tank
Either commercial or custom-built chassis
Feet of hose carried:
- 200—¾"
- 200—1"
- 400-600—1½"
- 1,300—2½"

1½" hose lines preconnected
Individual gages on discharge side of each outlet
Quick-operating ball-type valves
Wet water proportioner and reserve bank

PHOTOGRAPHS BY MIAMI FIRE DEPARTMENT PHOTOGRAPHER

Last year there were 749 rescue calls and here's the Gerstenslager rescue car that responded.

And Fire Chiefs--All In Miami

expansion. To illustrate, let us make a few comparisons between the close of 1956 and the former conference year 1948:

	1956	1948
Stations	15	10
Men	617	332
Basis, platoons	3	2
Hours per week	56	72
Engine companies	11	9
100-foot aerials	2	2
65-foot aerials	5	2
Service trucks	—	3
Combination hose wagons, 75 g.p.m.	2	2
Chemical trucks	5	2
Rescue truck	1	1
Civil defense truck	1	—
Budget	$2,981,348	$1,201,131

All Miami firemen are furnished uniforms and fire-fighting clothing and an M.S.A. all-service gas mask. Equipping each man with a gas mask became necessary with the development of fog and wet water application. It is necessary, for best results with fog, to get into or close to the seat of a fire, and the gas mask gave the fire fighting forces the necessary respiratory protection for the in-close tactics used in Miami.

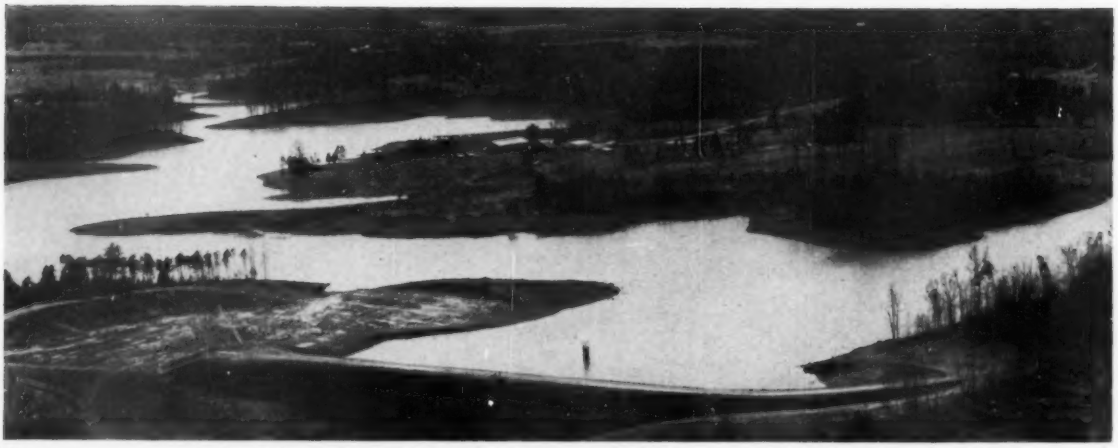
Miami-Trained

Fire training in the Miami Fire Department has been developed to the point where it is nationally recognized. Chief Fire Officer Milton Q. Bullock, Chief of Training, and his staff, working with fire experts from Oklahoma A & M, the Armed Forces and others in the field, along with extension courses for officers and men from the University of Florida and the University of Miami, have been responsible for the high level of training within the Department.

(Continued on page 162)

How All 1955 Fires Were Controlled

Number	
957	Booster line with fog
175	Pump cans
114	By occupants with extinguishers
99	Garden hose
88	Out before arrival of apparatus
62	CO_2 or dry chemical
50	One 1½" line with fog
35	Two same, or wet water
28	Other extinguishers
22	One 1½" line fog or wet
21	Two 1½" with fog
21	Two or more 2½" straight streams
18	Water solution extinguishers
17	Burned off
10	One 2½" stream
7	One 2½" fog
7	Booster line fog and wet water
5	Automatic sprinklers
4	Two 2½" with fog
3	Foam extinguishers
39	Other equipment
1,879	No. of fires



The new dam across Little Richardson Creek makes another 479,000,000 gallons of water available to Monroe. Water passed over the spillway for the first time three weeks after this photograph was taken.

Three times as much raw water storage, 50% increase in filtration capacity, and a remodeled plant means . . .

More Water for Growing Monroe

By W. H. CROW, *Superintendent Water and Sewer Department Monroe, N. C.*

THE summer of 1954 shook many North Carolina municipalities out of a complacent attitude toward water supply. Surface sources that had been adequate and dependable for years failed. The City of Monroe, a growing industrial community of 10,000 inhabitants, saw its 200-million-gallon Lake Lee reservoir lowered to critical levels before the rains of Hurricane Hazel ended the record-breaking drought.

Although Monroe got through the summer with a minimum of restrictions on water usage, city officials took steps to avoid the severe water rationing programs used as last resort measures by many neighboring communities. In September 1954, we called in the engineering firm of W. K. Dickson and Company, Inc., of Charlotte, N. C., to make a study of Monroe's water needs and develop a sound program that would insure an ample supply of water under the most severe conditions. On the basis of this report, the people of Monroe approved a $500,000 bond issue to finance our water-improvement program.

Studies of rainfall and runoff records for the area indicated that the 50-square-mile drainage area of Richardson Creek, the city's present source of supply, would be more than adequate to meet the city's expected demand for a great many years, provided adequate storage were available to meet demands over a prolonged dry period. In our case, the term adequate meant sufficient storage to meet our expected 1970 average daily demand, plus 25% for peak demands, over a 90-day period, assuming no resupply to the storage basins during those 90 days. Allowing for evaporation losses and reduction in reservoir capacity through sedimentation, a total of 590 million gallons would be required.

Impounding Basin Needed

To provide the needed storage, a new impounding basin was necessary. We selected a site on Little Richardson Creek above Lake Lee that had a drainage area of 9 square miles and a capacity in excess of 350 million gallons. Plans were made for construction of an earth dam, a spillway, and intake tower at this site, and a contract for the work was awarded to Guss Carpenter of Monroe. We closed the valve on the blow-off line on December 6, 1955, and on March 16, 1956, water passed over the spillway for the first time. The new reservoir, when full, covers an area of approximately 125 acres and has a capacity of about 479 million gallons. The dam is 800 feet long, 48 feet high, and 280 feet wide at the base. The spillway is 250 feet long, and its elevation is 8 feet below the top of the dam. Approximately 70,000 cubic yards of earth went into the $52,600 structure.

Plans were also made for increasing the height of the concrete dam at Lake Lee by 3 feet, using a treated timber flashboard, erected by the city crews. This would increase Lake Lee's capacity to an estimated 270 million gallons. Fortunately, we were able to start the summer of 1955 with a full lake.

Increased demands for treated water made it necessary to increase the capacity of the filter plant and the raw water pumping station. A general contract for this work was awarded to the Gilbert Engineering Company of Statesville, N. C., in June 1955.

We increased the raw-water pumping capacity by replacing an existing 800-gpm pump with a new 2,100-gpm Worthington unit driven by a General Electric motor. The remaining two pumps, one supplied by the American Well Works and the other by the Chicago Pump Company, and

each rated at 1,600 gpm, and the new unit, make up the complete raw-water pumping facilities. New piping arrangements contain provisions for the future installation of a 2,400 gpm standby gasoline-powered unit. An S. Morgan Smith hydraulically operated rotovalve is used in conjunction with the new pump to reduce pressure surges when the pump is shut down. New Williams-Hager globe-type silent check valves have been connected to the discharge side of the two old pumps.

The original filter plant was built in 1938 and consists of a mixing and flocculation basin, two settling basins of 1-mgd capacity each, and four filters, each rated at 500,000 gpd. The location of the plant near the center of town eliminated any possibility of acquiring additional property. Possibilities for expansion were extremely limited, and with conventional settling basins, plant capacity could not be carried beyond 4 mgd. Consequently, the design of new facilities was based on the use of mechanical clarification permitting expansion to at least 6 and possibly 8 mgd at the present site.

The present contract called for the installation of an Infilco Accelator capable of handling up to 3 mgd. This unit combines mixing, flocculation, and settling in a single unit. It was placed into operation on July 12, and since it has been in service, we have noticed a considerable improvement in the raw-water pretreatment. Of course, adjustments in chemical dosages and familiarization with the new equipment by plant operators should further improve the treatment process. A similar unit will be installed in the other basin when needed. We are purchasing a spare drive unit for the Accelator to eliminate the possibility of a long delay in restoring proper clarification, should there be a breakdown. The old mixing and flocculation basin will be abandoned.

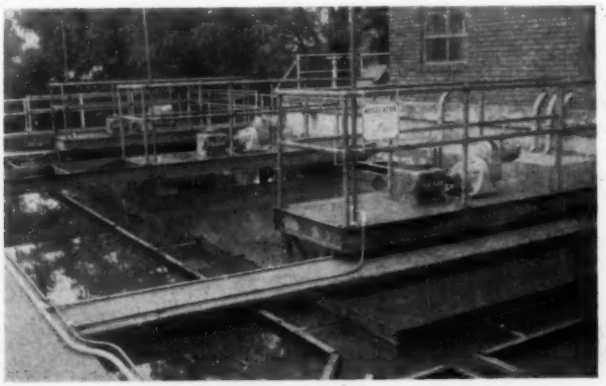
A bubbler-type water level device will be used to actuate a butterfly valve in the influent line and hold the settling basin level to a predetermined elevation.

New Filters

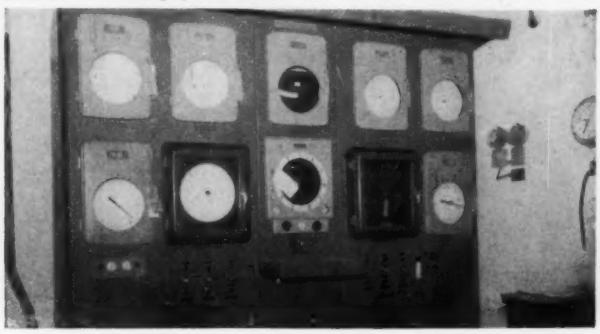
Two additional 500,000-gallon filters increased plant capacity from 2 mgd to 3 mgd. These units, located alongside the existing filters, are equipped with Wheeler bottoms and pneumatically operated butterfly valves. The four existing filters are being completely renovated and similarly equipped. More effective filter washing will be accomplished by the installation of Palmer sweeps on all six units. The controls and recorders are of the pneumatic type. Builders-Providence Division of B-I-F Industries, Inc., furnished the valves and pneumatic installation.

The operator will control filter washing operations and rate of flow settings from a console located in front of each filter. Wash water flows will be centrally recorded and totalized, but a dial indicator on each filter console will show the wash water flow in gallons per minute and the rate of rise in inches per minute. All filter valves can be operated from the consoles. However, each valve will be equipped, as well, with a manual operator for use in event of an air supply failure.

A new chemical-feed building and elevator, to be built behind the existing filter building, will feature a hopper and chute arrangement to permit loading of the chemical feed-



Above. **An upflow desludging unit in the old settling basin increased its capacity by 300%.**
Left. **A 3-foot flashboard on the Lake Lee spillway meant an additional 270,000,000 gallons stored.**
Below. **A centralized control panel provides closer operating control with less physical labor.**



ers from the third floor directly above the feeders. Dust collectors will remove chemical dust from the room during loading operations. A separate room on the second floor of the old building will house the two existing Wallace & Tiernan chlorine machines. These units are being converted for automatic proportioning and provided with new scales and distribution panels. The scales and cylinders will be kept in a first-floor room directly beneath the chlorinators. Arrangement of the machines will permit both breakpoint and post chlorination. Chemical and chlorine dosages for both raw and finished water will be proportioned automatically according to the flow, once dosages have been set. The completely remodeled building will afford greater laboratory and office space. The new dry chemical feeders were furnished by Omega Machine Company Division of B-I-F Industries, Inc. Equipment and supplies needed to bring the present laboratory facilities up to date are to be furnished by the general contractor. The contract also includes the installation of a sample table and pumps to test water.

Central Control

A central control panel, also furnished by Builders-Providence, will be located in the office. This unit includes indicators and recorders to furnish information on clearwell level, raw and finished water flows, wash-water flow, chlorine flows, and finished water pH and pressure. The central panel also will allow the operator to control raw and finished water pumps, settling basin level, and finished water pH.

New Wash-Water Pump

We are installing a new 500-gpm wash-water pump to fill the existing wash-water tank. This pump can be controlled automatically by the water level in the wash-water tank, or manually by a "start-and-stop" button mounted on the central panel.

The existing finished water pumping facilities consist of two De Laval horizontal, turbine-type pumps, one of 1,600 gpm capacity and one of 1,300 gpm capacity. For standby pumping service, we are installing a Morris Company 2,000-gpm gasoline powered horizontal pump.

Improved Conditions

We expect many advantages from the plant improvements, not the least of which will be dry pipe galleries. The old hydraulically operated valves, in use for nearly 30 years, leak badly, keeping the gallery floors, walls, and piping constantly wet. The pneumatic system of valve operation and controls will eliminate wet galleries in addition to providing improved operation.

Mechanical clarification, while probably requiring somewhat more careful operation, should result in clearer settled water for the filters. Since the present flocculation basin has an insufficient retention period for maximum efficiency, floc is still being formed after the raw water reaches the settling basins, thereby reducing the effectiveness of these units also.

The operators expect to be able to exercise closer control over the various plant functions by virtue of the automatic features of the new installation and the convenience of having as many operations as possible centered in a single control panel. Also, the improved laboratory facilities, coupled with more dependable clarification, should permit more effective use of pretreatment chemicals than is possible at present. City Manager Lott T. Rogers, and the other city officials are implementing the present program with a long-range plan for progressive development of the Richardson Creek watershed. Negotiations are under way to have a weather station set up at Lake Lee to obtain accurate records of rainfall on our watershed. These records, in conjunction with data from a water-level recorder to be installed at the lake, will make possible some correlation between rainfall and runoff in the Richardson Creek area.

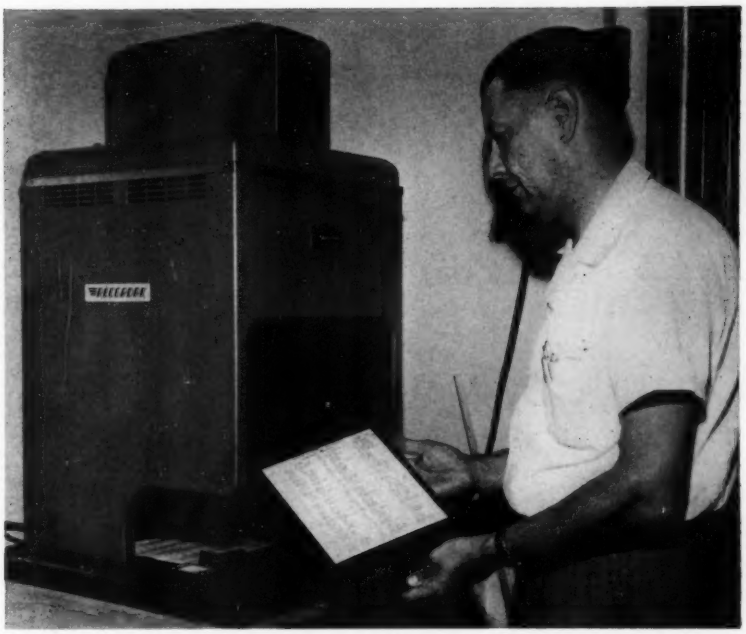
Aid to Future Studies

This information will be invaluable in future studies, not only by the City of Monroe, but also by others interested in agriculture, geology, and related fields. Periodic reevaluations of the demand and supply problem will guide the city in the development of additional storage, treatment, and pumping facilities.

Gowanda, N. Y., Gets a New Pumping Engine

This 500-gallon pumping engine was delivered in May of this year to the Village of Gowanda, N. Y., by Young Fire Corporation, Buffalo, N. Y. With a 6-foot lift using two lengths of 4½-inch suction hose, 1,017 gpm were delivered at 120 pounds pump pressure.

By HAROLD PETERSON
City Clerk
Salina, Kans.



Mr. Peterson is shown at the Model JC microfilmer which is made by Recordak Corp., of New York, with an enlarged (shown in two-thirds size below) registration panel.

Voters' Registration List from Microfilm

SALINA, Kans., used to pay $250-$300 for photographic prints of the city's registration lists. To do this, registration had to be completed ten days prior to election day. Then it was necessary to type name, address, occupation, and age on strips which were inserted into steel panels 9 inches by 10 inches in size and able to hold 35 to 40 strips. They were thus kept in alphabetical order and it was not necessary to retype the complete list each year. We have 13,000 to 14,000 registered voters in the municipality of Salina.

But now, by using Recordak Microfilmer Model JC (shown in the accompanying photograph) we get clearer prints, developed in 3 days, and at a cost of $50. A sample print from the enlarged microfilm is shown here. Procedure is to place the holders in the well of the microfilmer and reduce it to 16mm film. The films are enlarged on nonphotographic paper with automatic continuous-flow enlarging equipment.

This method not only produces registration lists for the precincts but can also provide a permanent tamper-proof record of registrations for future, possible reference. These records may be used at elections during the year.

Plans

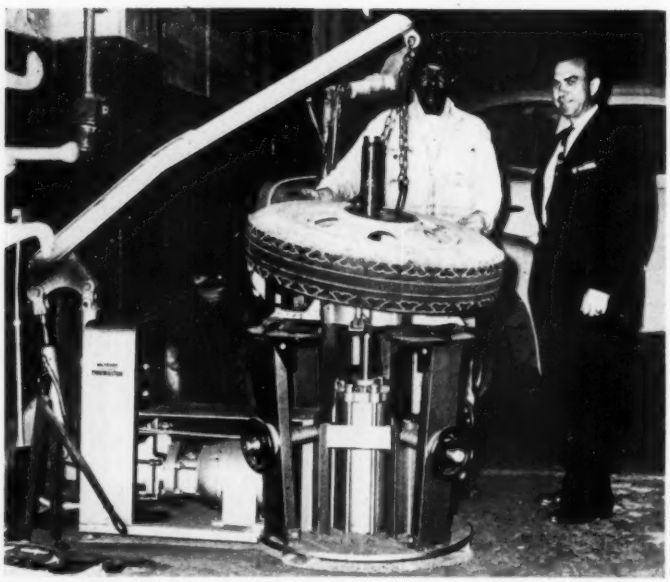
We contemplate microfilming birth and death certificates, filed in this office, prior to forwarding them to the State Bureau of Vital Statistics. Our microfilmer will record them.

REGISTER OF VOTERS — CITY OF SALINA

0 FIFTH WARD 6th PRECINCT Page 1

Date of Registration	NAME	Age	OCCUPATION	RESIDENCE	Check Line
Jul 25 52	Adams, Mary Virginia	27	Housewife	710 E. Republic	
Jul 25 52	Adams, Robert H., Jr.	27	Sales Manager	710 E. Republic	
Mar 15 56	Adrian, Curt C.	39	U.S.A.F.	923 Kennison Rd.	
Mar 15 56	Adrian, Mary	34	Housewife	923 Kennison Rd.	
Feb 8 52	Allison, Mara Beth	27	Housewife	804 Konison Rd.	
Feb 8 52	Allison, Junior Milton	27	Salesman	804 Konison Rd.	
Oct 14 54	Anderson, Clarence P.	32	Insurance Adjuster	920 Lewis	
Oct 9 52	Anderson, Floyd E.	25	Telegraph	952 Pearl	
Oct 16 52	Anderson, Helen L.	23	Housewife	952 Pearl	
Mar 3 53	Anderson, Earl Q.	33	Draftsman	951 Pearl	
Oct 22 54	Anderson, Martha		Housewife		

Flat Tires Can Cost $50 Per Hour



Superintendent Verne Cheuvront finds the tire changers to be his most important pieces of equipment.

. . . so Long Beach, Calif., develops a high-speed way to repair them

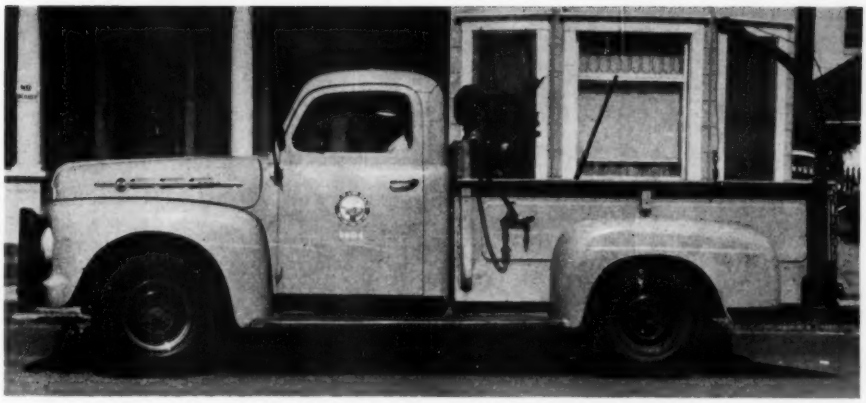
By VERNE W. CHEUVRONT
Superintendent
Automotive Division
Long Beach, Calif.

THE Automotive Division of the City of Long Beach is responsible for the maintenance of 1,028 vehicles, making it one of the largest municipal operations of its type in California. We also feel that it is one of the most modern and efficient.

The Division operates on the theory that time is the primary consideration in maintaining this fleet of passenger cars, motorcycles, street sweepers, tractors, trash trucks, cranes, road graders, and related equipment. Time is stressed and emphasized repeatedly to all maintenance employees, because one hour's loss of a vehicle due to a simple flat tire can, and has, cost the taxpayers as much as $50.

A nail in the tire of a large road grader, for instance, can stop operations for five or six other vehicles and 12 or 14 workers. Out of service, or "downtime," must be reduced to a minimum since these men are being paid even though their machines are not working. Since from 20 to 25 truck tires go flat each day, this can add up to a tremendous loss. The Automotive Division has the responsibility of getting men and machines back in service as quickly as possible.

Tire-changing time on heavy equipment has been reduced from approximately 30 minutes per tire to less than 10.



The Automotive Division operates two of these tire-service trucks for emergency maintenance of vehicles away from the garage. Each truck is equipped with hydraulic jack, crane, air compressor, and impact wrench, plus other power tools.

Tire trouble actually constitutes the largest single problem in the field, and approximately 70% of the requests for outside service are due to flat tires on trucks. When a distress call is received by one of the city's two repair garages, a tire-service truck is dispatched to the location. The Automotive Division operates two of these tire-service trucks, each equipped with hydraulic jack, crane, air compressor, impact wrench, and other power tools.

Replacement tires on rims for most trucks are stocked by the repair garages and the proper size is placed in the service truck and rushed to the scene of the trouble. The flat tire is quickly replaced by a fresh one, and the out-of-service machine and men are back at work. Complete, accurate records are kept on every service call, including data on type of trouble, vehicle involved, time of first request for service, and total out-of-service time. Out-of-service times over 45 minutes are considered unusual.

In addition to a tire-service truck, each repair garage has one other major piece of equipment: a Salsbury Truck and Bus Tiremaster. A third truck Tiremaster is maintained by the city Water Department. Our experience has shown that these large tirechangers are two of the most important pieces of equipment we have. After a truck tire is returned to the garage for repair, it is quickly placed on the Tiremaster, which mechanically breaks both beads and removes the tire from the rim. The Automotive Division purchased the first truck Tiremaster in late 1954. It was such a great time and energy saver that two additional units were purchased, the last in February 1956.

Time and Cost Elements

Prior to the Tiremaster installation, truck tires were removed manually with hammer and chisel. This laborious method required at least 30 minutes per tire. The Tiremaster reduced this tirechanging time to less than 10 minutes without fatigue to the operator. With 20 to 25 truck tire changes daily, this means a minimum time savings of eight hours per day. If the truck Tiremasters were not used, one additional employee would actually be required for each garage. Since each worker requires $350 per month (including fringe benefits and vacation time) the city saves enough in a few months to pay for their machines. In our opinion, any city operating 100 or more large vehicles (excluding passenger cars) would save money by installing a truck bus Tiremaster.

The Automotive Division owns the vehicular equipment used by the city. Motorcycles, police cars, sweepers, trash trucks, road graders, and all other units are purchased and maintained by this Division. The equipment and vehicles are in turn rented to the Police, Highway, Sanitary and other departments, and monthly rental bills are sent out to each department. The Automotive Division operates on a 24-hour schedule. This Division has been in existence for over 20 years and has a working force of 93 employees.

Federal Housing Census in Chicago to Be Expanded with City Funds

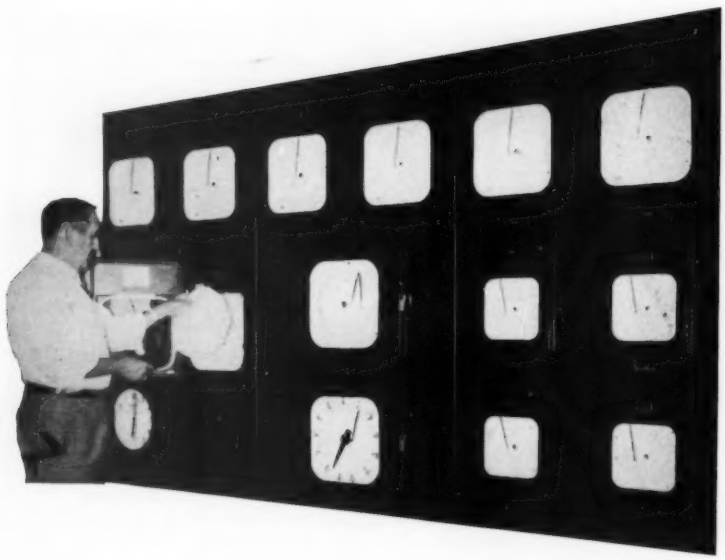
THE CHICAGO Housing Authority has contracted for an expanded housing census with the United States Census Bureau at a cost of $97,500. The study, which seeks to determine Chicago's housing need and supply, will document information that is vital to developers.

Under the contract, the Bureau of Census, which is currently conducting a limited housing census in Chicago for its national housing inventory, will expand its questions to obtain additional data on local conditions. The Chicago Community Inventory, a nonprofit organization affiliated with the University of Chicago, will correlate, analyze, and interpret the findings, and make them available to city agencies and the public.

The study is expected to be completed next year. The Chicago Housing Authority and other city agencies hope to make use of its data in planning for future housing programs.

The additional census work by the Census Bureau will cost $75,000 and the analytical work will be $22,500. To help finance the study, the Housing Authority has obtained approval from the Public Housing Administration to charge $420,000 against development costs in current and future public-housing projects. In addition, the Chicago Land Commission is expected to contribute one-third, or $32,000. The remaining cost will be paid for by the Authority's state grant funds and any contributions from public agencies interested in the study.

The national housing census study was authorized by the Housing Act of 1956 and will be paid for by a $2,500,000 appropriation by the next session of Congress.



Complete instrumentation and centralized control reduces the work force needed to operate the plant. Here the author changes charts on one of the recording instruments.

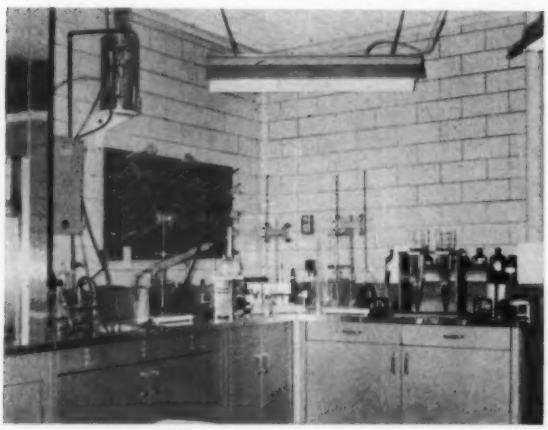
Instrumentation Makes the Difference

New sewage-treatment plant in small industrial municipality provides operating and control data automatically

By WALTER E. GEIGER
Assistant Borough Engineer, Edgewater, N. J.

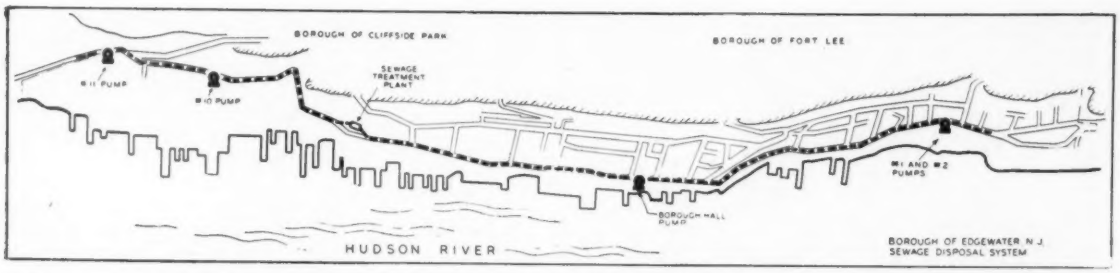
IN the little Borough of Edgewater, N. J. (population 4,000), is a new primary sewage-treatment plant more modern and designed with more ingenuity than those in many large cities. It not only can perform its assigned task of purifying sewage, but it can automatically prove how well it is doing its work by use of an unusual instrumentation program.

The borough itself is highly industrialized. It is situated on the west bank of the Hudson River across from New York City and occupies an area only 3 miles long and one-third mile wide. Its entire waterfront is devoted to shiploading piers and related industry. Its daytime in-



The plant's modern laboratory features stainless steel cabinets, good lighting, and a complete array of equipment.

Esthetic and functional considerations were included in the design as shown by plant appearance and arrangement.



Two interceptors and four pumping stations replace 11 river outfalls to deliver all sanitary sewage to the treatment plant.

dustrial population is more than twice that of the permanent resident. The new plant purifies the sanitary sewage only, and does not receive any industrial wastes.

In one respect, Edgewater's plant and system was conventional — it needed a trunk interceptor sewer. Previously, the borough discharged sanitary wastes directly into the Hudson through 11 outfalls. But in 1948 the mayor and council decided to eliminate these outfalls and engaged Consulting Engineer Roscoe P. McClave to design the needed corrective facilities. The interceptors were built in 1950 and 1952, requiring four lift stations. Later, the treatment plant was placed under construction, and last year it was in full operation. Borough Engineer Richard Gaul was in charge of construction.

The plant is located on the interceptor line near the south edge of the borough. The interceptor has two pumping stations on each side of the plant. Sewage from the south side can enter the plant by gravity from the nearest lift station; however, that from the north must be pumped a third time to the common wet well located adjacent to the plant influent channel.

Treatment Provided

Before entering the wet well, sewage entering from the north first passes through a Worthington comminutor and is prechlorinated by a Wallace & Tiernan feeder. One of the three vertical Fairbanks-Morse pumps then lifts the sewage to the common wet well, mixing it with the incoming sewage entering from the south. The pumps are rated at 500, 1,000, and 1,500 gpm against a head of 24 feet and are driven by 5-, 10-, and 15-hp motors, respectively. The largest pump is also connected to a Continental gasoline engine used for standby power. Westinghouse electrical control equipment automatically controls pump operation; but if desired, the pumps can be operated by manual controls.

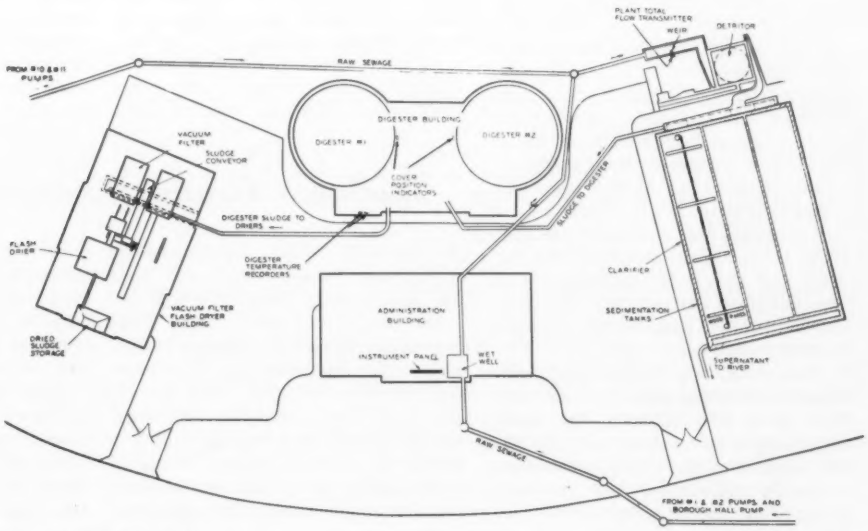
Next, the sewage flows through the influent channel, over a rectangular weir, into a Dorr Detritor. After this unit removes the coarse, easily settled, inorganic solids, the sewage then flows into one of three rectangular settling basins where most of the remaining settleable solids drop out. The effluent from these tanks then passes into the river, free of its troublesome pollution.

The settling tanks are each 70 feet long, 14 feet, 3 inches wide, and 10 feet deep, with a capacity of approximately 70,000 gallons. They are designed to provide a minimum detention period of three hours at a capacity flow of 1½ mgd. To remove the sludge, the tanks are provided with Link Belt traveling scrapers.

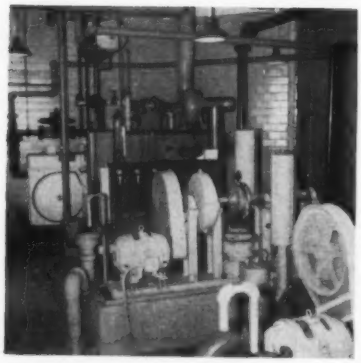
Sludge-Handling Equipment

The sludge from these tanks goes to a pair of digesters, helped along by a Simplex and a Duplex Marlow sludge pump. The units are powered by Fairbanks-Morse electric motors, one a 3-hp and the other, 5-hp.

The two digesters are 35 feet in diameter, 22½ feet high, and hold about 170,000 gallons each. Both are equipped with Pacific Flush Tank



Layout diagram of the Edgewater plant. The addition of two clarifiers will increase plant capacity sufficiently to permit treatment of sanitary wastes from Cliffside Park.



Ample space and neat arrangement of equipment facilitates general maintenance and operation of equipment.

floating covers and cover position indicators.

To maintain proper digester temperatures, the operators can circulate supernatant liquor from the digesters through a PFT heat exchanger. The liquor flows through the exchanger by gravity and is pumped back into the digesters by two 150-gpm Fairbanks-Morse pumps. A small Builders-Providence chemical feeder can add lime to the digesters to control the pH at an optimum level, if desired.

Sludge Drying

Digested sludge is either pumped or flows by gravity to the sludge-drying building. Here, two Komline-Sanderson vacuum filters remove excess moisture from the sludge and a portable A. B. Farquhar belt conveyor carries the sludge cake to the C. E. Raymond flash-drying system. This dryer is divided into two oil-fired heating compartments, one for drying and the other for deodorizing. The end product, a fine powder, is blown through a 6-inch duct to a 2-ton capacity overhead storage bin where it can be bagged or dumped directly into a truck. We use the dried sludge for fertilizing lawns, trees, and shrubs in local parks.

Instrumentation is the most significant portion of the plant. As it is arranged, the operator can keep close contact with all plant performance and also with performance of the pumping stations by looking at the instrument panel in the administration building.

This panel has Bristol Metameter telemeter transmitters that transmit total flow data entering the plant, and similar transmitters at the four lift stations. The recording receivers integrate and record flow measurement from the stations as well as the total flow entering the plant influent channel.

Two-pen Bristol recording potentiometers record digester temperatures and two separate PFT instruments show the relative positions of the digester covers. Bristol instruments also record vacuum filter operation and the electrical load used in pumping sludge to the digesters, and recirculating digester supernatant through the heat exchanger. The controls and temperature recorders for the flash drier are located near the drier on a separate panel.

In addition, we have located instruments in the digester building that record the elevation of the floating covers; we have three gas meters, one for purchased gas and one for gas produced in each of the digesters; and a Mine Safety Appliance combustible gas alarm.

Additional Facilities

The plant also has been provided with a complete, thoroughly modern laboratory, equipped with the latest in sewage testing devices. Here daily and weekly tests are conducted to determine the degree of treatment provided, sewage strengths, and similar data.

A Fairbanks-Morse 25 KVA generator driven by a Hercules gasoline engine serves as a standby in case of failure of the power line. This unit can supply about 85% of the power needed for full plant operation and is sufficient for emergency service.

Plug Valves

We have used Nordstrom plug valves throughout the plant whenever possible, and Walworth check valves on the discharge side of the three influent pumps.

As mentioned earlier, four lift stations bring the sewage to the treatment plant. Sewage entering each station first passes through a Worthington comminutor. Two of the stations have three pumps each, one rated at 500 gpm and two at 1,000 gpm. The third station has two 150 gpm units and the fourth station one 500 gpm and one 1,000 gpm pump. At each station, the largest pump also is connected to an auxiliary Continental gasoline engine to provide standby power.

Daily Plant Flow

The daily plant flow now averages about 400,000 gallons and may reach double this when the system connects with all the contributing industries. We also have arranged to treat sanitary wastes from the Borough of Cliffside Park, located immediately west, to bring the total flow to about 2 mgd. This will require two more settling basins of the same size as those now in use. All other plant facilities will be able to handle the increased load without enlargement.

Personnel

Seven men, including the author, maintain and operate the treatment plant and lift stations. One man on each shift remains full time. Three additional men work three days a week on routine cleanup and maintenance, and fill in as operators over the weekends. The superintendent is included in the seven-man operating force.

We feel that the complete instrumentation has enabled us to provide the best possible service with the least amount of interruption and interference. Routine logging and measuring has been reduced to a minimum, and we are always assured of adequate records for any municipal or state inquiries and investigations. Without such instruments, operating a treatment plant such as ours would be an arduous task.

Business Group Donates Plan Funds

A MASTER PLAN for improving downtown Toledo, Ohio, will soon get under way, chiefly through the generosity of a citizens' group. Trustees of Downtown Toledo Associates, a private organization of Toledo businessmen, recently voted $10,000 of its private funds to the city-county planning commission for a downtown master plan. Lack of public funds had prevented the commission from undertaking the project. Funds will be used to hire two planners, who will be added to the commission staff, to work on the master plan. The commission will furnish facilities and direction for the work.

One of the first aims of the program will be to define the core of the business section and the fringe area and to outline a planned program for expansion in the foreseeable future.

The pool as it appeared shortly before its completion is shown at the left. It is 100 feet long and 50 feet wide, and is equipped with one 3-meter and two 1-meter diving boards. Seventeen underwater lights, the receptacles for which can be seen here, help light the pool at night. Attendance at the pool averaged more than 350 persons per day and netted the city $1,403 in earnings during the first four months of operation.

Swimming Pool to Help Fight Population Decline

A small Missouri town has completed a new swimming pool and is building a 10-acre surrounding park to help make the community more attractive to potential residents

By LAWRENCE GISH
City Manager
Marceline, Mo.

MARCELINE, Mo. (population 3,000), is a small municipality with big recreation plans. Recently we built our first swimming pool and laid the groundwork for a 10-acre park. Both are being developed to make our community a more attractive place. In this way we hope to attract new industries and residents to reverse the slow decrease in population that we have experienced during the past 25 years.

The pool built for Walt Disney Municipal Park (still to be completely developed) cost $76,490. Opened to the public in July, it enjoyed an average attendance of more than 350 persons a day and netted the municipality $1,403 in earnings in its first month of operation. It served not only Marceline but the 15,000 people who live within a radius of 20 miles.

For its first swimming pool and the future park, the city chose a 10-acre site next to Marceline's country club, with the lake affording a pleasing view. The land cost $3,000. To make sure the future park would be developed properly, Marceline called in Harland-Bartholomew and Associates, planning consultants from St. Louis, Mo., to draw up a general development plan. The design calls for spacious picnic and open lawn areas, with a play area for playground equipment and a tot lot for junior citizens. Other features are parking areas and an open-air theater. Both the park site and the swimming pool were financed by a $78,000 general obligation bond issue approved by taxpayers last year. Marceline is the boyhood home of Walt Disney; consequently, both the park and the swimming pool were named in his honor.

To meet the needs of the surrounding area the city decided on a swimming pool of 100 feet by 50 feet, with a separate wading pool. Designers were the engineering firm of Larkin and Associates of Kansas City. Pool is equipped with 17 underwater lights, one three-meter diving board, and two one-meter diving boards. The depth is graduated from a minimum of 3 feet to a maximum of 10 feet. There are lawn seats for spectators and benches for swimmers around the pool. A breakdown of the pool's total cost shows:

Contract price	$66,490
Electrical equipment purchased by the city	5,500
Cost to extend water and sewer mains to accommodate pool	4,500
Total	$76,490

Marceline's swimming pool, with a total capacity of 186,000 gallons, uses a gravity sand filtration plant which purifies all the water every eight hours. The water in the wading pool is changed every two hours.

Operation of the pool is under a pool manager responsible to the city manager. When the season is at its peak we use two life guards, one ticket-taker, and one person to operate the concessions. Admission charges are 40 cents for adults and 20 cents for children.

City Design Plans: Tools for Creating Better Looking Cities

Here is a call for more active planning for the visual appearance of communities that says that the next step is for cities and towns to adopt "city design plans" as part of their comprehensive land use plans

By C. McKIM NORTON
Vice President
Regional Plan Association
New York, N. Y.

IF American cities and towns are to become better looking as well as better functioning places in which to live and work, city officials must find increasingly effective ways of injecting principles of good city design into the immense amount of urban construction that will occur in coming decades. The rapid increase in population that is predicted for our municipalities between now and 1975 will present new opportunities to achieve whole city neighborhoods designed as much for beauty as for efficient functioning. Similarly, increasingly intense urban redevelopment activity aimed at clearing up decayed urban cores presents large and small cities with unparalleled opportunities to achieve a new downtown attractiveness as well as new street and block patterns.

But are our municipal governments prepared to guide and foster a new pattern of urban beauty? Are existing city planning efforts sufficient to achieve the attractiveness that we all seek in cities and towns? To answer this question we must first look at the present efforts of city planning.

Let us assume that our cities and towns have and are continuously updating master plans aimed at clarifying and bringing order to the relationships between the different elements of the city. Let us assume specifically that these plans do the following things:

(a) block out the land areas suitable and needed for different kinds of commerce and industry and designate areas for residence to house a reasonable estimate of the future population;

(b) propose community facilities to serve industrial, commercial and residential areas;

(c) propose mass transit, highway, parkway and local street systems to provide an integrated transportation system effectively related to land use needs;

(d) outline park acquisition and development programs to serve not only residential but also business and industrial areas;

(e) specify principles for the building and development of private structures;

(f) state policies of community design and standards of residential densities and recreation;

(g) propose improvement of local self-government within the framework of over-all city government.

Let us assume also that our cities have adopted zoning ordinances, subdivision control regulations, capital improvement programs and other legislative, administrative, and budgetary programs in support of the comprehensive master plan proposals.

I think that it is fair to say that the kind of master planning thus outlined will produce action programs that will insure more properly functioning cities. But I do not think that it will give us cities that are more beautiful.

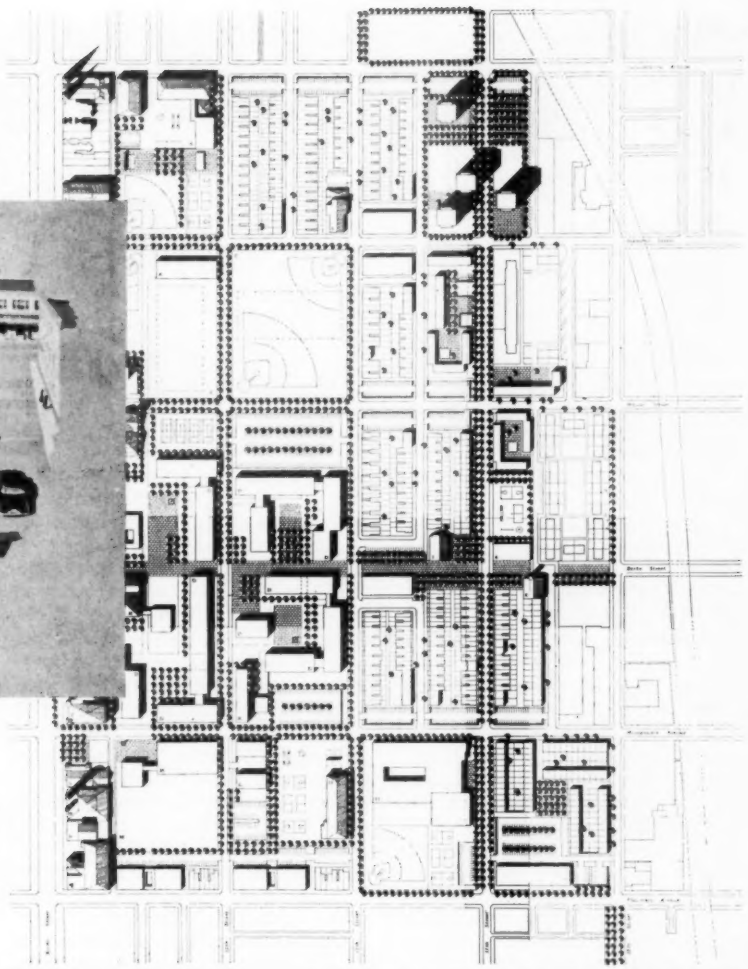
What we really need and want to cap our planning efforts is a means that will insure that a three-dimensional beauty will rise out of the mass of population density standards and other land use controls contained in master plans. We want the assurance that a man walking down a street or riding in his automobile or sitting on the terrace of his home will reap not only the benefits of an efficient city but the beauty of a city whose structures, streets, and park areas are related for the maximum of attractiveness.

"City Design Plans"

As one means of achieving a better looking city let me throw out for discussion a proposal that has come to my attention. This suggestion, which seems to me to be a most constructive one, was developed by a joint committee of the New York Chapters of the American Institute of Planners and the American Institute of Architects.

The proposal is to authorize city

Right.
Design plan at work in a large city. North-south promenade and east-west pedestrian way liberally planted with trees will act as unifying design element in Philadelphia's Northwest Temple Redevelopment project that will include many diversified types of architecture.



The design plan at work for a small community is illustrated in the architect's sketch at the left. Partial application of the idea was made in 1952 in the City of Rye, N. Y., when the 12,000-person municipality completed construction of public parking lots behind its "Main Street" stores. The city hired a consultant to develop the over-all architectural treatment of stores to guide and inspire individual owners in remodelling their separate buildings. The plan has been followed spontaneously by owners who have remodelled.

planning commissions to prepare, and, after public hearing, to adopt, and, from time to time, to amend as an integral part of their master plans, "city design plans" for guiding new physical development in the city by both public and private agencies and for conserving the beauty that already exists.

Such city design plans would indicate for the various parts of the city the esthetic character to be encouraged and would recommend the means by which such character might be attained and protected. The plans would also make distinctions among: (a) areas to be protected because of historic architectural or scenic character; (b) unbuilt areas to be developed; (c) areas to be substantially redeveloped and thereby given a new esthetic character, and (d) areas already largely developed and not ready for substantial redevelopment.

Developing "Design Plans"

The first step in developing a city design plan would be to make a visual survey of the city. This would list the historic, architectural, and scenic areas to be protected. It would analyze the esthetic potentials of redevelopment areas giving attention first, of course, to areas with high redevelopment priorities. Finally, it would analyze the esthetic quality of those areas already largely developed and not yet suitable for major redevelopment, cataloging their visual assets and liabilities.

The next step would be to develop the plan itself. This would be a design process that would be placed in the hands of architects and city designers working in close touch with the land use planners of the city planning commission. Guided by the particular esthetic quality that is to be achieved or maintained, the design plan would lay a definite physical framework for the future development or redevelopment of the area in question.

In historic sections, the specific historic buildings to be preserved would be so designated. Malls, or other open space, that would enhance the setting of the historic buildings might be called for and planned. Old buildings that in their present location, height, color, or general design do not contribute to the desired esthetic quality would be designated, and appropriate controls would be established for the future buildings that would eventually replace them. These controls might go so far as to specify the placement of the future buildings on their respective lots so that the organization of the building masses around and near the historic buildings will heighten and focus attention on them. The design plans would also specify the kind of pavements for roadways and pedestrian ways which the city and private developers would provide. Such pavement specifications would be made

to obtain the kinds of textures that will contribute to the over-all esthetic quality desired for the area.

Where areas are to be redeveloped, the design plan might not be quite so specific. The location of tree-lined pedestrian ways, or promenades, might be planned in relation to the locations of certain needed public facilities thus providing a framework of visual references for the area. These pedestrian ways—in connection with existing streets—might be planned to tie the redevelopment area to the adjoining parts of the city to assure a measure of visual continuity as one passes from neighborhood to neighborhood.

Some cities have already started to do this. In Philadelphia, the City Planning Commission has prepared a series of detailed redevelopment proposals indicating land use changes, street changes, and the location of parks and community facilities to be included in the redevelopment area. The redevelopment plan includes density and building controls such as one finds in the zoning ordinance. The physical aspects of the redevelopment plan is worked out with local community leaders organized into an area planning committee. The design of individual buildings or groups of buildings is, however, not specified. The architect is liberated to building buildings that may have some chance of enduring, since the open space around them will endure as part of the city design plan.

Action Programs

In carrying out specific city design plans certain action programs would be undertaken. First, there would be vigorous city-wide attack on the visually ugly details of the city's landscape. I refer here to such things as posters, billboards, and gas pumps in residential areas; advertising awnings, newsstand shacks and used car lots in business areas; the over use of neon and illuminated signs in certain areas. Zoning, licensing, health, and sanitary codes are devices that are already available to fight these ugly details. But a more vigorous use of these and possibly new and stronger legal devices should be made to rid cities and towns of their visual litter.

A second city-wide action program that should be undertaken with the adoption of specific design plans should be the development and coordinated use of more imaginative street signs, light fixtures, hydrants, and all the other pieces of "street furniture" for which the city government is responsible. There are many instances in city business districts where traffic signs, for example, parking signs, stop and go signals, bus stop signs, and others are clustered in ugly jumble at street corners. In many cases, the planless profusion of them not only creates an eyesore but provides so large a number of warnings to drivers and pedestrians alike as to hopelessly confuse them.

There is already a growing awareness among city officials that much can be done along these lines to improve the appearance of city streets. Perhaps the best recent example is Manhattan Borough President Hulan Jack's program for Third Avenue in New York. Taking advantage of the opportunity to make Third Avenue a handsome street when the old Third Avenue elevated railroad was removed, Mr. Jack removed all old style street lighting and replaced this with well-designed new standards. Trees, four to a block on each side of the street, were planted the full length of Third Avenue, and finally a wider and better pavement was laid on the bed of the Avenue.

But much more can and should be done in the coordinated use of well-designed street signs, and other equipment for which a large amount of local funds are spent each year. In New York City for example, half a million dollars a year is spent in erecting and maintaining street signs alone. Good city design can play an effective role here.

Another area where action can assist in a city design plan program is in the improvement of zoning ordinances. Especially needed in most cities and towns are zoning amendments that permit more flexibility in the design and layout of large-scale building developments or redevelopments.

Some cities have already worked out procedures for handling this problem either through special permits for developments of a certain minimum acreage or by planned districts of different categories and combinations of land uses to be approved by the planning commission and adopted as amendments to the zoning map.

The visible parked car is an anachronism in good city design. What is the point of spending thousands of dollars on new buildings only to hide them behind lines of pastel-colored pieces of hardware larger than two bathtubs?

C. McKim Norton,
Regional Plan Association

Architectural Control

Should municipalities go a step further in their city-wide attempts to achieve more urban attractiveness by exercising architectural control over all individual buildings built by private enterprise? I do not think so, despite the fact that a growing number of smaller communities are to one degree or another imposing architectural standards on private construction. Some have insisted through city ordinances that houses must look alike (example: (Coral Gables, Fla.) while others have insisted that they cannot look alike (example: Scarsdale, N. Y.). The City of Rye, N. Y., has established a Board of Architectural Review that passes on plans of all proposed buildings in order to weed out those that, in conjunction with their neighboring buildings, produce an excessive uniformity, excessive dissimilarity, or inappropriateness. Some cities control the appearance of buildings in certain areas that have achieved recognized beauty such as New Orleans' "Vieux Carre."

There is, I think, a great danger in architectural control except as a means to preserve a style in areas of historic significance. The look-alike ordinances are too mechanistic. Boards of Review can discourage atrocious and incongruous buildings but they cannot guarantee good architecture. Furthermore, such Boards are not in a position to bring principles of area design to bear in passing on buildings one at a time. Historic areas can, and should, be preserved. But the point where new developments are to be controlled beyond the general guidance of the area design plans proposed in this article is a point where the lawyer should bow out and leave the field to the design professions to come up with constructive answers.

In conclusion, I think the only way to achieve better looking cities is to attack the problem head on and in full public view. As cities prepare or revise their comprehensive master plans, a city design plan as proposed here should properly be included among other plans. Such city design plans would not be separate and apart but instead would be considered in connection with all of the other programs, especially those affecting urban redevelopment, zoning, and public works.

APWA members and guests learn about the latest developments in equipment.

The East Orange Armory took on the appearance of a national convention. Forty-five firms exhibited their products at the one-day meeting.

East Orange, N.J., Holds Record APWA Meeting

THE East Orange, N. J., Armory took on a different aspect on September 12 when army tanks, trucks, and jeeps gave place to a large array of public-works equipment. However, the activity was not confined to the armory, for signs posted at strategic locations throughout the city marked city vehicles, and several large bus tours told the local citizenry that something big was taking place. Over 400 public-works men and other interested persons converged upon East Orange to take part in the most active and successful meeting ever held by the Metropolitan Section.

The armory resembled a national convention of a few years back. Forty-five firms exhibited equipment that ranged from street signs to 12-ton trucks; from concrete blocks and noiseless plastic garbage cans to large street sweepers and refuse-collection units. It was a great show, one that members will talk about for many years.

East Orange officials check one of the advantages of using plastic garbage cans.

Noon-Hour Program

The noon-hour program included an excellent buffet luncheon, sponsored by numerous exhibitors and the City of East Orange, a welcome address by the Honorable William M. McConnell, Mayor of East Orange, a panel discussion on snow and ice control, and a talk on the East Orange water system. Arthur Brokaw, City Engineer, East Orange, served as host for the day and presided at the luncheon.

Curtis C. Colwell, County Engineer, Essex County, N. J.; Paul R. Screvane, Director of Operations, New York City Department of Sanitation; and August Zentgraf, Division Engineer, Department of Sanitation, Newark, each presented a paper on snow and ice control describing the problems and methods of operations of their respective government agencies. Charles G. Bourgin, Water Engineer, East Orange, presented a description of the East Orange Water Department and its water reserve.

Members and guests participated in two tours during the afternoon. One tour covered the various municipal buildings, parking lots, and other facilities of East Orange and the other tour took in the East Orange water reserves.

In the evening a dinner and short business meeting, including election of officers, was held at the Hotel Suburban. The group elected Harold F. Fredericks, Town Engineer, Irvington, N. J., as president; Casimir A. Rogus, Director of Engineering, Department of Sanitation, New York City, as vice president; and Floyd Wilcox, Director of Public Works, Lynbrook, N. J., as director.

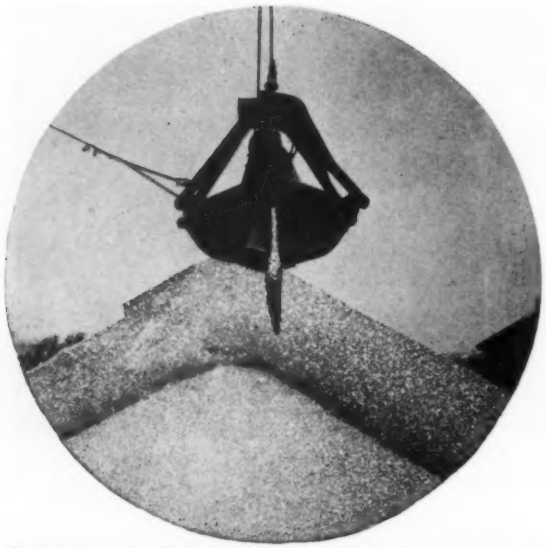
August Zentgraf, Division Engineer, Department of Sanitation, Newark; William S. Foster, Editor, THE AMERICAN CITY; and John Baffa, Consulting Engineer, New York City, were reelected as director, secretary, and treasurer, respectively.

Award of Merit

President Francis J. Klaess, on behalf of the membership, presented an Award of Merit to Paul R. Screvane for his outstanding leadership in the field of public works and his active and valuable service to the APWA N. Y.-N. J. Metropolitan Section.

Newly elected President Fredericks presented an engraved gavel and certificate to Mr. Klaess, the outgoing president.

The more than 200 members attending the dinner gave a standing ovation to Mr. Brokaw and his staff for their excellent work in making this meeting one of the finest ever.



Storage of rock salt is one problem faced by many large communities. New York's long-range goal is to store salt in silos that will permit gravity flow to the spreaders.

Quick-Measured Snow and Ice Control

Techniques used in battling snow and ice are basically the same in two cities and a county, but the procedure varies to fit local conditions

RAPID action in combating snow and ice increases in importance as traffic becomes heavier and communities become more dependent upon vehicular transportation. Paul R. Screvane, Director of Operations, New York City Department of Sanitation; August E. Zentgraf, Chief Engineer, Department of Public Works, Newark, N. J.; and Curtis C. Colwell, County Engineer and Supervisor of Roads, Essex County, N. J., pointed this out in a panel discussion at the Fall Meeting of the New York-New Jersey Metropolitan Section, American Public Works Association.

The two cities rely chiefly on the use of rock salt; however, New York does use ashes on bridges to minimize corrosion to the steel structures. Essex County relies primarily on screenings made up of 50% hard coal cinders and 50% rock salt. Under extreme conditions, they all add about 10% of ⅜-inch stone to the loads used on the mountains or steep hills. Calcium chloride is added to each load to expedite melting when icing conditions prevail at extreme cold temperatures.

Tests Conducted

New York City's Department of Sanitation conducted extensive tests in 1951 on spreaders then available. They actually marked out 25 1-yard squares on a street pavement and weighed the amount of material cast on each square by the various salt spreaders. Manufacturers of salt spreaders cooperated in these tests which led toward more precisely controlled spreading rates. New York's latest specifications require uniform spreading to as low as ⅛-pound per square yard while the truck travels at speeds varying from 3 to 15 miles per hour.

New York's major problem at present is the storage of rock salt in large quantities. Little area is available in the built-up portions of the city where the need for salt-spreading is most acute. The city plans to eventually receive and initially store salt in silos that would permit gravity flow of salt into the spreaders. Radiating from the primary storage in silos, there will be secondary storage in locations close to the areas of usage. The minimum total storage goal is for about 80,000 tons of salt.

During the interim, the city is investigating the use of prefabricated sheds for storage purposes. The steel superstructures will set on concrete walls extending 5 feet above ground-level. Large openings at each end will permit easy access for heavy trucks and ready manuverability of the loading equipment.

New York's early post-war equipment consisted of 6-cubic-yard spreaders. In recent purchases they have gone to 9-yard units, each of which can be operated by one man. This change conserved man-hours

Snowfalls of 6 inches or more usually means plowing and the tough and expensive problem of snow removal, especially in commercial areas.

and permitted the units to spend more time actually spreading salt and less time in the nonproductive elements of the operating cycle.

Formerly, New York relied largely on conveyor-type loaders for truck-loading operations. However, recent salt-loading operations are chiefly handled by front-end loaders. Comparative loading tests have shown that for New York's conditions and needs, the front-end loaders are superior.

Newark employs 12 mechanical salt-spreaders, each holding approximately 7 tons; 6 tail-gate spreaders; 100 refuse-collection and street-cleaning trucks with plow assemblies; 9 tractor plows; 8 snow blowers, and 5 mechanical snow loaders to cope with the problem.

The city uses approximately 1,500 tons of bagged rock salt each year, storing about 600 tons at one time. They would prefer storing the full 1,500 tons in the fall, using the lower priced bulk salt, but lack of storage facilities makes it impossible at this time. Bagged salt requires multiple handling, but has the advantage of flowing more freely in the spreaders.

Essex County makes use of 24 sand spreaders on county trucks, 24 spreaders on contractors' trucks, 29 plows on county trucks, and 66 plows on contractors' trucks. They also use four Jeeps mounted with push boards in front and towing cables in the rear. These are used on the steep hills to push or tow vehicles stalled because of the slippery conditions. During the 1955-1956 winter season the Jeeps aided approximately 1,800 motorists.

One hundred county employees plus the drivers and helpers on the contractors' equipment make up the work force. The county is responsible for 195 miles of highway of which 25 miles are on grades that require screening with the first sign of freezing rain or snow.

The early use of salt applied accurately and evenly by units like this Highway Equipment spreader insures safe travel and often eliminates the necessity of plowing.

Weather Forecasting

All authorities responsible for snow and ice control utilize regular weather forecasts in preparing for the job ahead. Essex County goes one step further by annually contracting for the service of Weather Corporation of America, Consulting Meteorologists. A teletype is installed in the Livingston headquarters and all weather advisories from the consultants are sent by this method. When a snow or ice storm is imminent, the consultants advise the county as to the type of storm, probable duration, and probable time of arrival. This information is, in turn, forwarded to all municipalities in Essex County via the New Jersey State Police teletype. The local police pass the information to their public works departments. The Livingston headquarters is manned 24 hours per day.

Procedure

Upon receipt of information regarding a snow or ice storm, all the departments notify their personnel, ready equipment, and make other preparations. In Essex County, arterial mountain roads and city streets at signalized intersections receive preference followed by less important roads where there are hills, signalized intersections or bad curves. If the falling snow accumulates to a depth at which cinders are no longer effective, trucks are released from screening activities and plows are mounted on county trucks. At the same time plowing contractors are alerted to mount plows and report when ready. Then they are sent out on preassigned routes that cover all roads in the county network. Plowing is divided into 32 routes, some of which overlap at heavily traveled portions of the highway.

Newark uses sodium chloride (rock salt) or calcium chloride (pellets) or a mixture of the two to fight all ice conditions and snow storms up to 5 or 6 inches in depth provided the temperature is above 20° F.

A prearranged schedule calls for servicing the hills and bridges first, then thoroughfares, intersections, and streets paved with brick. About 100 men take over the initial activities. To insure adequate personnel, no vacations are granted to personnel handling these activities during the period of October 1 to April 1.

Should the weather forecast indicate a snowfall requiring plowing, plow blades are mounted immediately on approximately 12 street cleaning trucks that act as an initial flying squadron on the main arteries. When it is evident that 6 inches will accumulate, full-scale plowing is initiated using about 90 more units.

Snow removal operations require the hiring and registering of outside personnel and trucks. Trucks and shoveling personnel are hired by the hour, and snow is dumped into the Passaic River.

The discussion pointed out that it is of prime importance that the people of a city or county have roads and streets that permit easy access and movement. The cost of snow removal and ice control is small when compared with the benefits derived therefrom.

Taylor, Texas, uses the narrow working face of a trench for truck dumping control. Stockpiled cover material on the windward side of the trench plus enclosed Pak-Mor collection trucks reduce paper blowing to a minimum.

Keep That Sanitary Landfill Sanitary

Simple but basic fundamentals, imagination, and perseverance serve as keynotes to a successful sanitary-landfill program

By ELDON P. KOETTER
Sanitary Landfill Specialist
Caterpillar Tractor Co.

OVER 100 cities will adopt sanitary-landfill methods in 1956, but the net gain in this effective type of garbage disposal remains unknown. We have no way of knowing how many sanitary landfills will revert to nothing more than maintained open dumps in that same period of time. However, we do know that this backward step is constantly taking place.

Public health officials, municipal personnel, and equipment manufacturing companies are all sincerely interested in establishing sanitary-landfill methods. It has been proved an efficient, low-cost, permanent method of garbage and refuse disposal. The program is appealing to cities that have available land and yet, many sanitary landfills become maintained open dumps after a period of several years.

What is the cause? Why should such an economical method of garbage disposal become disorganized? To answer these questions, let us examine areas that have had an outstanding past record of achievement. Personnel close to the field always feel reasonably sure of recommending these certain sites for examination by interested groups. What do these blue-ribbon examples of the sanitary-landfill have in common?

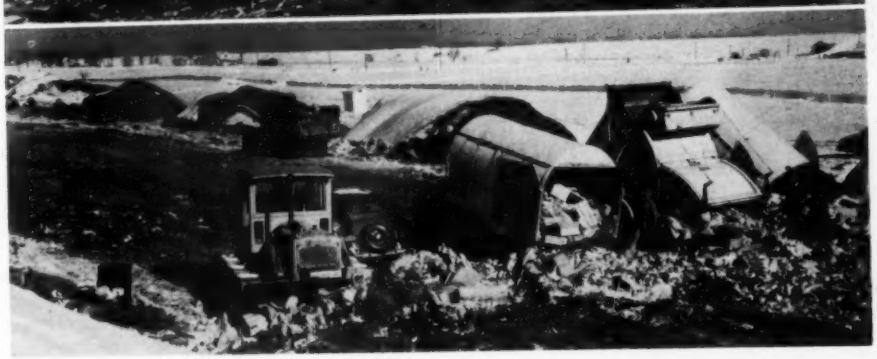
Basic Fundamentals

First, they have competent and interested supervision. The supervisors are not always full time; many have time-consuming additional duties such as streets and roads, sewage, or entire city engineering programs. They do, however, find enough time during each week to ride a truck route, follow collectors and check in at the sites to hand out compliments or constructive criticism. This constant spot check on the city refuse-collection-and-disposal system serves to install a certain *esprit de corps* so necessary for the proper functioning of any organization.

Second, these cities have an informed public. The citizens are constantly told through newspapers, radio and TV that their city administration is saving them money and eliminating a health menace. Signs clearly mark sites. Clean uniforms, trucks, and tractors invite inspection, and the members of the sanitation department, through their own knowledge of over-all operations and enthusiasm, serve as a solid public relations department. Many times these sanitary-landfill programs are initiated by powerful citizen groups such as Kiwanis or Lions Clubs.

In small communities, the tractor-loader can do work for other departments in addition to operating the sanitary fill.

Large quantities of refuse or a relatively long haul of cover material may dictate the use of a tractor bulldozer and pan-type scraper combination.



Properly planned programs eliminate the need for winter shut-downs. The Eau Claire, Wis., program includes stockpiling of cover material whenever the ground is frost free.

They have made it their business to inform and be informed.

Third, all of these successful cities have adequate equipment to do the job. They have regarded purchases of equipment such as enclosed collection trucks and crawler-type tractors a capital investment, and have considered the program as permanent and not a stopgap expediency to avoid injunctions and lawsuits. Their attitude has been to equip the department adequately in the first year or two of operation and show the public complete results in a short period of time. Inadequate size and number of machines does more harm than good, as money has been spent with no appreciable results.

Proper Equipment

Another earmark of a good landfill program is proper equipment selection and application. Having a versatile machine to begin with has its advantages, because it can then be applied as physical changes in the site take place. A basic rule in the most efficient operations is the adaption of landfill operational practices to fit the land. This means some careful initial planning to reduce tractor travel to a minimum and to eliminate unnecessary rehandling of cover material. This initial planning reduces tractor maintenance and operating costs, and also enables a tractor to dispose of greater quantities of refuse and garbage.

Some of the machine types that have beeen used successfully on many landfills throughout the world, and their application characteristics, are:

Tractor with front-end loader . . . where loads must be carried a short distance . . . where overhead loading of trucks is necessary.

Tractor-bulldozer . . . where much land clearing and preparation is in-

One of the keys to a successful sanitary landfill program at Albany, Ga., is the machine-saving signs that control truck dumping.

volved . . . where hi-lift feature of the loader is not needed . . . where carrying of the load is not necessary.

Tractor-bulldozer with pan-type scraper . . . where much excavation is to be done . . . where large quantities of refuse are involved . . . where seasonal fluctuations might dictate extra machines during peak load . . . where cover material must be carried some distance.

Power shovel or tractor-mounted Hystaway . . . where low ground or marshy areas do not allow free tractor travel . . . where excavations greater than 8 feet are necessary in hard digging.

In many instances where cover material must be hauled from stockpiles and the city cannot establish a definite need for a crawler drawn scraper, a used truck has been purchased to operate on the landfill site, hauling cover material from stockpile to working face. By this method, a front-end loader and truck can handle large quantities of material in a short period of time. This also greatly reduces maintenance costs on the loader that is not designed for efficient long hauls.

An earmark that is coming to mean more in sanitary landfills and in every other phase of public administration is a method of cost accounting. Some governmental bodies have elaborate systems, others have almost none. An accurate method of keeping costs gives a substantial guide to future purchases and may, in future years, save cities countless thousands of dollars. Following is a sample outline that may establish accurate cost per ton of refuse and garbage disposed:

City population size	35,000
Tonnage of refuse per year	22,356
Cost of land (3.5 acres) (pro-rated over life of site; often can be deleted because city can sell at increased price and collect greater taxes.)	$ 1,575
Depreciation of equipment (initial cost ÷ 10) (Based on 10-year equipment life)	$ 2,000
Fuel, oil, grease, repairs (incl. labor)	$ 2,000
Misc. expenses (Shed, stove, pick, ax, tools, fence, etc.)	200
Salaries (direct)	$ 5,200
Salaries (pro-rated supervision)	$ 2,000
Total yearly expense	$12,975
Cost per ton of refuse disposed	$.54

This estimated cost of $.54 per ton is in line with reported sanitary-landfill costs throughout the country.

Many cities throughout the country have the preceding points in common. A list of such cities include: New York City, Memphis, Los Angeles, Tulsa, Albany, Ga.; Hartsville, S. C.; South Boston, and Lynchburg, Va.; Livermore, Calif.; Waterloo, Iowa; Appleton, Wis.; Sedalia, Mo.; Chandler, Ariz., and Abilene, Texas.

Sanitary landfills actually began in a primitive state during biblical times. They have progressed and grown as populations have increased and industry and communities have improved techniques. They will continue to grow in stature as long as these few basic fundamentals, imagination, and perseverance continue to be a part of this vital community function.

Miami's In-Service Training Proves Its Worth

AFTER a year's experimentation with a city employees' training program, Miami, Fla., has announced with satisfaction that the program will be continued. "Before and after" examinations, the city reports, show that 95% of the city employees increased their knowledge of city operations following the training program, and there has been a better flow of communication between management and workers.

Development

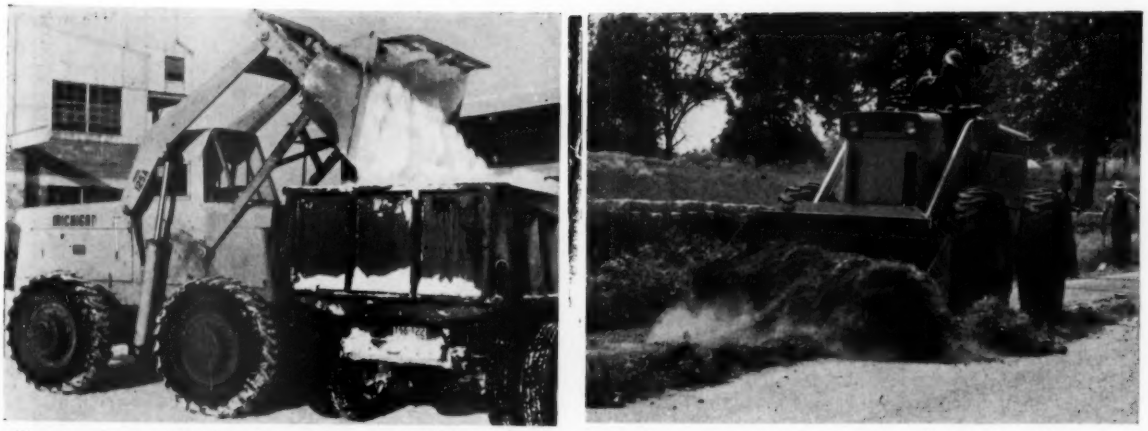
Miami's training and education program was developed last year under City Manager E. A. Evans, who worked along the premise that no person is completely "ready-trained and ready to work." Accordingly, Mr. Evans appointed a committee of city employees to make recommendations for a program of education for city work forces. The result was the training and education program developed in cooperation with department heads and their employees. Expert guidance was provided by John E. Miklos, former director of the Public Service Training Center, University of Florida Extension Division, who was appointed as administrator in charge of the in-service training project.

The program, based on the application of modern business management practices to government, emphasizes techniques by which work skills can be improved, information about the city government, and improvement in relations between the city and its employees. Its curriculum ranges from a city orientation course (to help employees get acquainted with Miami's government), conversational Spanish (to help employees in their contacts with Spanish citizens), to a human relations and public relations course and attendance for selected personnel at a General Motors Company "Powerglide" school dealing with the theory and operation of automatic truck transmissions.

Other achievements of the training program are: a better and more courteous service toward the public; a development of better attitudes toward the city as an employer; and the advantages of good communications between management and workers. Older employees were brought up to date on changes in departmental operations and organization and city workers gained a feeling of belonging.

Emphasis on Management This Year

This year, the training program will lay special emphasis on management development to train supervisory personnel, and public relations aimed at improving relations with the public and within the city government itself.



The use of one piece of equipment for many jobs is another reason for increased emphasis on proper and periodic maintenance. A tractor shovel has many uses, both in winter and summer.

If It's Worth Buying, It's Worth Maintaining

Proper maintenance means trouble-free operation at reduced costs and lengthens equipment life

By ALBIN E. YORK
Service Manager
Clark Equipment Company
Construction Machinery Division
Benton Harbor, Mich.

EFFICIENT municipal street repair and other city housekeeping jobs today are dependent upon the use of versatile equipment. The tractor shovel represents such equipment—it can dig; rip out old pavements; load aggregate; pull up trees; clean ditches. But efficient operation involves more than the use of versatile equipment—it also requires proper maintenance of such gear.

Dollars-and-cents logic makes clear that the cheapest way to get the most out of the tractor shovel is to give this rugged machine the same care craftsmen give fine tools. True enough, it costs money to spend a few minutes daily making sure that the machine will continue to do its job well, but it costs more not to make these checks.

Most municipal motor pool employees do carry out the most obvious maintenance operations from time to time, such as checking to see that the radiator doesn't get clogged with dust or keeping the crankcase level. The department head should make sure that each vehicle operator and maintenance man knows what to look for, where to find it, and when to carry out the various maintenance operations.

Daily inspections should be made either at the beginning or end of each eight-hour shift, preferably at the end. In this way, needed extra work can be performed during non-operating hours thereby reducing equipment time-loss. The following items are based upon recommendations for maintenance of the Michigan 175-A Tractor Shovel, but are applicable to other equipment.

1. Check engine oil level and keep level at the full mark, using manufacturer-specified oil. The machine should be fairly level and the engine turned off.

2. Clean and refill the oil-bath air cleaner. Clogged air cleaners increase fuel consumption, lower power output, and allows dirt to enter vital parts of the engine.

3. Check radiator water or antifreeze. Overheated engines can cause considerable damage. In the Michigan, the radiator also cools the torque converters. Use water with a low mineral content.

4. Add fuel. This simple but sometimes forgotten operation prevents the loss of time associated with refueling on the job. Use gasoline of 75 octane minimum or No. 2 diesel fuel and be sure fuel containers are free of scale and dirt.

5. Check transmission and torque converter oil level and add manufacturer-specified oil as required.

6. Check hydraulic oil supply with machine on level ground and the bucket down. Use only high quality, heavy duty hydraulic fluid.

7. Check battery liquid level and fill only with water with low mineral content or better still, distilled water. Be sure terminals are clean and connections tight. A light coating of grease will help prevent corrosion of terminals.

8. Follow up with a quick visual inspection of the entire machine and note obvious conditions requiring corrections.

50-Hour Inspection

Maintenance required at 50-hour intervals requires more time than the brief daily inspection, but is probably the most important operation in prevention of normal wear.

The crankcase should be drained and refilled with the proper lubricant. The machine should be level and the engine at normal operating temperature when the oil is drained, for hot, agitated oil carries out more sludge. A clean engine oil filter should also be installed at this time. When replacing the filter, use new gaskets and check for leaks with the engine running.

Other checkpoints should include the differentials, planetary gears,

steering gear housing, and oil separator tank. Be sure to use the manufacturer's recommended lubricants in each case.

The master brake cylinder should be checked at this time and a heavy-duty hydraulic fluid added if necessary. It is wise to remove accumulated dirt from the air vent.

Don't forget the generator. Add a few drops of SAE 10W oil to cups at each end of the armature shaft and make a visual check of brush and commutator condition.

Regular Program

Additional maintenance should be carried out at longer intervals. Most convenient intervals usually are 500, 1,000, and 2,000 hours, but requirements will vary with field conditions. A good general rule is that signs of abnormal wear or heavy dirt accumulations mean that the operation should be done more often.

At 500-hour intervals lubricate the propeller shafts and universal joints with a low-pressure hand gun to avoid blowing the seals. Clean the grease fittings first and apply grease sparingly.

Drain and refill the torque converter, draining while hot if possible. Remove and clean the transmission sump and sump screen. Use new gaskets when replacing the sump to avoid leakage.

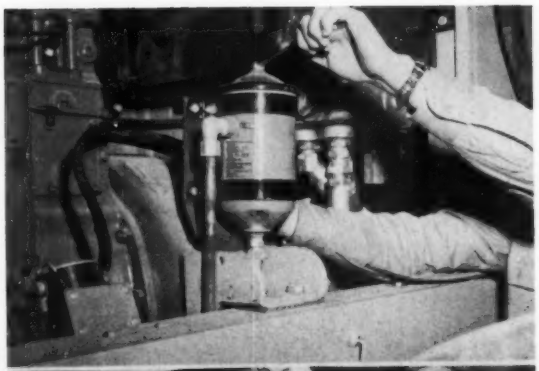
Replacing the torque converter filter periodically is extremely important in avoiding major repairs. The spending of a few dollars for a new filter can save the expense of a transmission overhaul. After the filter is replaced, run the machine a short while and then check the oil level. Usually it is necessary to add a small amount of oil.

The fuel filters on gasoline models should be cleaned and replaced and new cartridges should be used on both primary and secondary fuel systems on diesels. The oil separator tank should also be drained and refilled with the proper grade of hydraulic fluid.

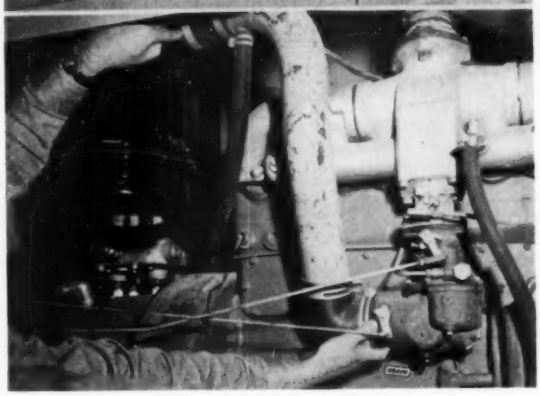
Additional Suggestions

At 1,000-hour intervals, front and rear wheel hubs and differentials should be drained and refilled with SAE 90 extreme pressure gear lube. The hydrovac mechanism also should be lubricated, removing the plug on the front of the unit and filling to plug level.

The oil separator tank should be removed at 2,000 hours and its lines flushed with gasoline. Also drain and refill the system at this time, or more often in extremely dusty operation. This avoids abnormal wear of cylinders, pistons, and packing.



Regular replacement of oil filter cartridges means a cleaner engine and less wear of internal parts.



Abrasive dirt can damage the hose connecting the air cleaner and intake manifold. A broken hose will admit dusty air that can seriously damage an engine.

Several maintenance operations should be carried out at intervals that are best determined by experience. The same basic principle of all preventive maintenance applies: fix it as soon as it needs it; nothing is gained by postponing a simple job.

It is surprising how often counterweights have fallen off only because no one ever thought to put a wrench to the bolts. Axle tie-down bolts and engine mounting bolts also are loosened by vibration over a long period of time. Hydraulic lines to bucket and boom cylinders should be checked occasionally for abrasion, especially when work is done in gravel.

Fan belt tension, of course, needs adjustment. The air cleaner screen should be rinsed in solvent when it appears to be quite dirty. The rubber hose between the air filter and manifold should be checked for abrasive damage or leakage.

Inspection of Bucket Stops

An important, but simple inspection is that of the bucket stops. After years of use, the stops sometimes will wear down, allowing the piston to advance too far and damage the cylinder head. Whenever work is done on the hydraulic system, the bucket should be on the ground on a rigid support to prevent injury to mechanics if a hose should give way or someone accidentally touches the controls.

In establishing any preventive maintenance program, remember that owners' manuals contain most information you need. Factory men have put much thought into the manuals for your use. If certain questions aren't answered in the manuals, don't hesitate to write or telephone the equipment distributor. The distributor knows that the best work of design engineers will get a black eye if the maintenance man in the field doesn't give the machine the care it deserves.

Heads Air Pollution Control in San Francisco

THE President of the Air Pollution Control Association, Benjamin Linsky, has been appointed administrative control officer for the new Bay Area air pollution control district in San Francisco.

Director of Detroit's air pollution control program since 1951, Mr. Linsky is a member of the faculty of the college of engineering at Wayne University, and a professional engineer.

A community of less than 1,000 persons finds it necessary to abandon its old sewage-treatment plant and build a new one

Dayton's new sewage-treatment plant occupies a site well removed from the residential area.

Small Towns, Too, Have Sewage Treatment Problems

By GEORGE STRANDBERG
Assistant Superintendent of Sewage Treatment
Dayton, Iowa

THE Dayton, Iowa, sewage-treatment plant is not spectacular, or even very large, but it plays an important part in the over-all welfare of the community. Moreover, it replaces an overloaded and poorly situated existing plant that had served for over 20 years.

For many years the old plant, comprised of sand-bed filters, was extremely overloaded. It was located relatively close to a residential area and, with proper wind direction, bad odors caused by the overloaded conditions would drift over the populated area. City officials called upon the Ames Engineering and Testing Service of Ames, Iowa, to solve the problem.

The nearness to town and the small amount of salvageable value of the existing plant made it advisable to select a new location and start from scratch. Selecting a new location was no easy matter, for money was scarce, with little or no funds available for a long interceptor or a lift station. A new site was finally selected on Skillet Creek about one-quarter mile downstream from the existing plant.

To avoid extending the sewer line through hilly country requiring cuts up to 30 feet, portions of the sewer followed a railroad track within the right-of-way lines. In some places the sewer was laid in the steep side slopes. Here a bulldozer carved a flat area into the bank to serve as a roadway for the dragline used in the trenching operation. This line was constructed of 10-inch-diameter vitrified clay pipe with poured joints.

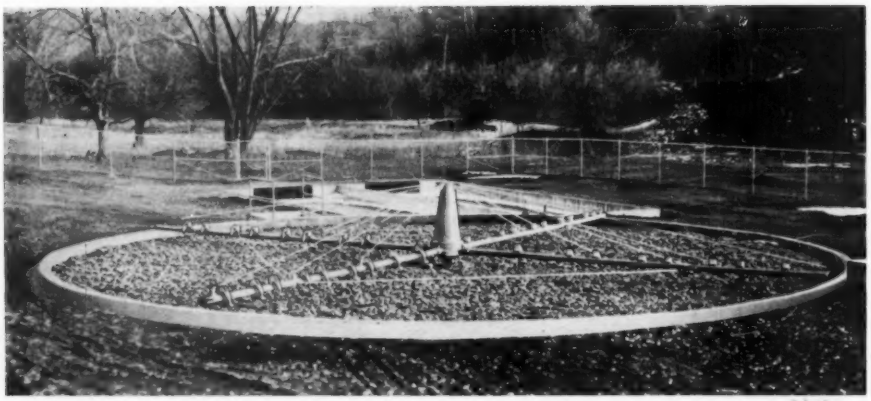
The relatively narrow and long flowing-through chamber of the Imhoff tank provides a longer detention time under present low flow conditions.

Complete Treatment

Treatment facilities include an Imhoff tank with a standard rate trickling filter and final settling tank. The design is based on a population of 1,200 people with a maximum flow of 100 gallons per capita per day, or a total flow of 120,000 gallons. Present flows amount to approximately 35,000 gpd.

Sewage entering the plant first passes through a reinforced concrete bypass chamber. The chamber includes two shear gates and an automatic overflow. By closing the gates, all sewage can be made to bypass the plant.

Next, the sewage flows through a manually cleaned bar screen. The sewer at this point is relatively close



Effluent from the trickling filter discharges into Skillet Creek, a small stream that empties into the Des Moines River.

to ground elevation, thus the raking platform is almost even with the ground, greatly simplifying the bar-cleaning operation. From here the sewage flows to the Imhoff tank.

The Imhoff tank was designed for a 2.5-hour detention period based on a flow of 155 gpd per capita. The capacity of the digestion chamber, excluding the neutral zone of 18 inches, equals 3.5 cubic feet per capita.

To provide a more favorable detention period under present low flow conditions, but still maintain an adequate detention period at maximum flow, the flowing-through chamber of the Imhoff tank was made narrower and longer than is usually found in a tank of this size. The circular tank has a 23-foot diameter and 30-foot depth, almost entirely below grade.

European Design

Effluent from the Imhoff tank next flows to the dosing siphon. This unit was manufactured and installed by the General Filter Company of Ames, Iowa. The siphon doses the trickling filter at the rate of 200 gpm.

The filter is 52 feet in diameter, 9 feet deep, and contains approximately 8 feet of rock. Its design was based on a raw sewage BOD of 220 ppm, a 35% reduction in the Imnoff tank, and a loading of 250 pounds per acre-foot per day. The vitrified clay underdrains drain into an inspection and collection gallery that extends around approximately one-third of the filter periphery.

The rotary distributor is of European design and, as far as we know, is the first one of its kind used in this part of the country. Instead of a mercury seal in the center, the sewage flows over a circular weir and out into the arms. The sewage, instead of being sprayed through nozzles, flows out of slots at the top of the arms and down over reaction plates that cause the distributor to turn. The only bearing is at the top and is readily serviceable by loosening several bolts and allowing the distributor to rest on the base plates. This unit was also manufactured and installed by the General Filter Company.

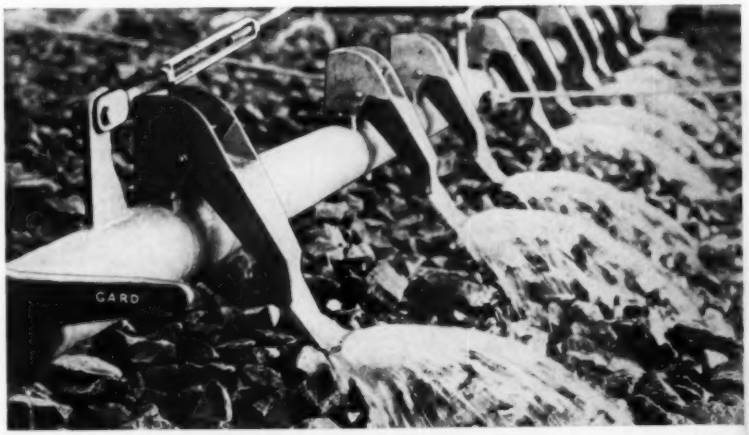
From the filter the sewage flows to the final settling tank. Rectangular in shape, the tank is 18 feet long, 8 feet wide, and 18 feet deep. This tank is the lowest structure at the plant. To eliminate the possibility of flood waters from Skillet Creek from flowing into the tank, an additional 2 feet was added to the top of the original 16-foot design depth. Design data was based on a detention period of 1.5 hours and an overflow rate of 800 gallons per square foot per day. Sludge is collected in two hoppers, one at each end of the tank.

Lack of funds prevented the construction of a lift station to pump sludge from the final clarifier back to the Imhoff tank, so two pumps were installed directly in the final tank. Each of the pumps will handle 50 gpm and are of the nonclog type manufactured by The Aurora Pump Company. The 1-hp Westinghouse electric motors are weatherproof, requiring no enclosure. These pumps can be used to recirculate if necessary.

Final effluent from the plant flows into Skillet Creek which, in turn, empties into the Des Moines River.

Sludge from the Imhoff tank flows by gravity to the drying beds. These beds are constructed of reinforced concrete side walls with sand and gravel placed over vitrified-clay drain tile underdrains. Sludge drying area amounts to 1.25 square feet per capita.

F. L. Warren Construction Company of Winterset, Iowa, held the general contract and the Hanson Electric Company of Dayton completed the electrical work. The entire plant was constructed for approximately $70,000. Plant operations began on October 31, 1955.



Sewage flows freely from the distributor arms, allowing large particles to pass without clogging. Note the good distribution of flow from the spillway-type reactors.

Facts From the New Manual of Springfield, Ill., Purchasing Department

By JOSEPH F. GERZIN
Purchasing Agent
Springfield, Ill.

THE City of Springfield, Ill., has produced a purchasing manual showing and explaining in detail the common operations of a city purchasing office. There are 20 short sections. One discusses the promotion of good supplier relations; others deal with buying proper quantity, quality, price.

Requisition should be made out clearly and define the requirements of the using department. Matters of servicing that may be needed should be stated and specific delivery data should be given. Do not use "Rush," "Immediately," "As soon as possible." Constant requests for "Rush" orders are indicative of poor planning by the using department. Insert the number required. Describe item requisitioned by vendor or manufacturer's number or specifications for obtaining the best quality, service, and price.

Following are excerpts from the code of the City of Springfield establishing the city's central purchasing agency:

There shall be established a central purchasing agency which shall be responsible for the purchase of supplies, material and equipment for the departments of public affairs, accounts and finances, public health and safety, streets and public improvements, public property and all subordinate departments, agencies, boards and commissions of the city.

There shall be established a committee on standardization and specifications composed of the purchasing agent as secretary, the city engineer, the superintendent of the city water, light and power department, the comptroller and the corporation counsel. The committee shall adopt as standards the minimum number of qualities, sizes and varities of common items of supply consistent with the efficient operation of the city government.

All contracts involving an outlay of $500 or more shall be based on specifications approved by the council. The city comptroller shall receive all bids submitted to the city and deliver them to the mayor for opening. All bids shall be opened by the mayor in the presence of a majority of the council and shall remain on file in the mayor's office open to public inspection for at least 48 hours. The council shall determine the most advantageous bid for the municipality and enter into a contract with the party submitting the lowest secure bid.

Under "Relations With Other Departments" the manual says that the purchasing agent is to become acquainted with the needs of the various city departments, to know the availability and the delivery times of the various materials, to maintain sufficient quantities in Stores.

The administrative departments are (1) to refrain from making contracts with suppliers directly whenever possible, (2) to prepare specifications for materials that require engineering or technical background, and (3) to assist in establishing maximum and minimum quantities for Stores' items.

Disaster Areas Will Get Water in Milk Cartons

THE Federal Civil Defense Administration has enlisted the support of the nation's dairies and their allied industries in a program that will deliver safe drinking water, packaged like milk, to stricken communities should a natural disaster take place.

The program proposes that, in any emergency, dairies in areas affected would package water in containers usually used for milk for shipment by air, rail, truck, or water to the disaster regions.

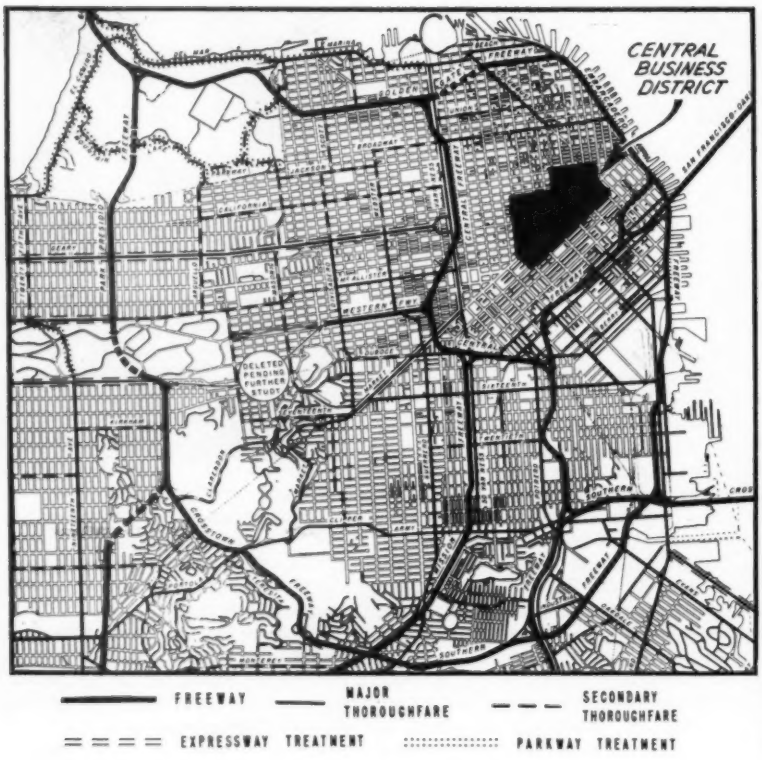
It would be the responsibility of the civil defense director in any community where the water supply was knocked out to determine the need for drinking water and the amount required. He would appeal to the nearest dairies still in operation and make arrangements for packaging and shipping the drinking water to his community.

Several companies are using hand stamps, special caps or inserting the regular cap upside down to identify the specially packaged water. Two companies are even producing special cartons.

The idea of using drinking water packaged in milk containers to aid a helpless community was introduced at Stroudsburg, Pa., in August 1955, when that city was flooded by the torrential rains of Hurricane Diane. With the Stroudsburg milk plant put out of action, an appeal for milk cartons to be used as water containers was made to the Lehigh Valley Cooperative Farmers Dairy at Allentown, which is located 30 miles away.

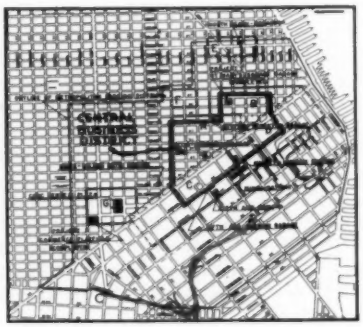
The Allentown dairy not only sent the cartons, but filled them with water to avoid the contamination that might have resulted from manual filling in Stroudsburg. The filled cartons were trucked to Stroudsburg and distributed to flood victims.

Cooperating with FCDA in drawing up the program were the American National Red Cross, the Department of Health, Education and Welfare, the U. S. Public Health Service, the Milk Industry Foundation, the Dairy Industries Supply Association, the Milk Carton Quality Preforming Council, the American Can Company, the Pure-Pak Division of Ex-Cell-O Corporation, the Sealright Company, the Michigan Milk Dealers Association, Dairypak, Inc., the International Paper Company, Fibreboard Products, Inc., and the Kieckhefer Container Company.

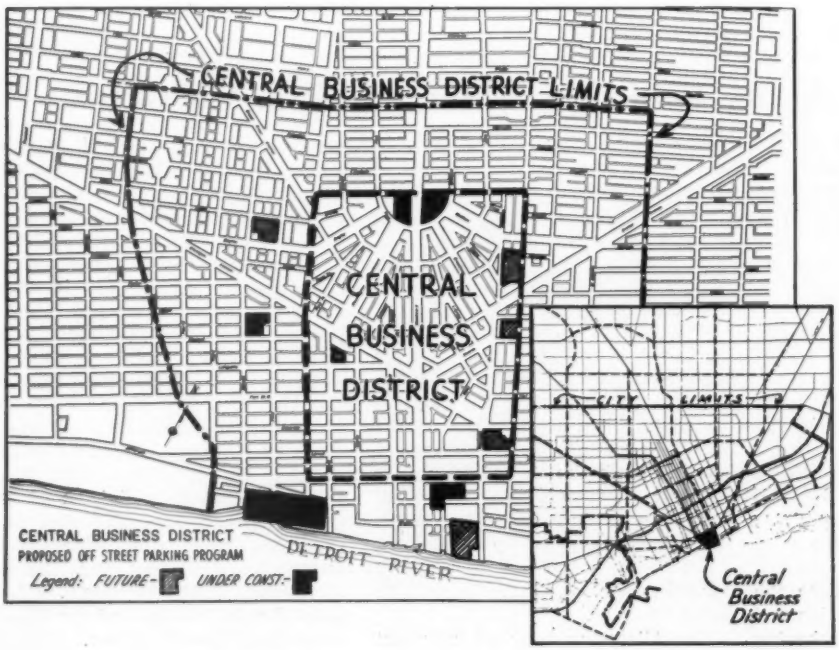


Map of San Francisco, Calif., showing the business district and the freeways encircling it. Locations are given of three off-street all-day parking facilities—North Beach-Broadway, Minna-Natoma, Fifth-Howard—which can be seen in the close-up view of the central business district. The others, in general, are for short-time parking, although in some cases, they offer monthly or weekly rates and, therefore, attract all-day parking. Freeways in existence and under construction are intended for both local and interurban traffic and will connect with the National System, either directly or through other freeways, Which freeways will be included in the National System has not yet been decided.

SHERMAN P. DUCKEL, *Director*
Department of Public Works
San Francisco, Calif.



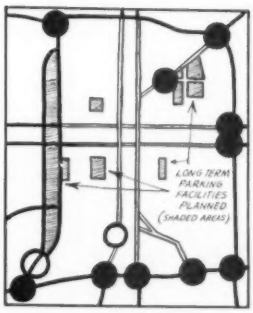
Present Problems in the Interstate Highway

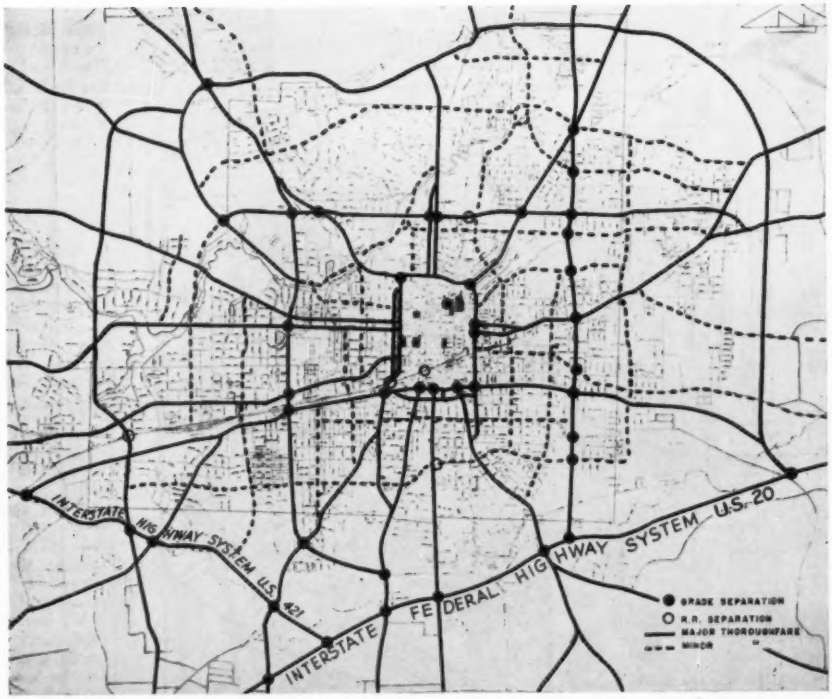


Map and insert showing the Detroit Metropolitan Area proposed expressway network (lower right) and off-street parking facilities present and planned within the Central Business District (in larger map at left). It is not possible at this time to list the routes which will be designated as urban extensions of the Interstate Highway System. However, it is probable that certain of the routes shown will be the ones so designated.

None of the off-street parking facilities shown are designated specifically for long-term parkers. However, it is felt that due to their location and rate structure, the facilities located outside the area bounded by Cass, Bruch, Jefferson, and Adams Streets will be used primarily by long-time parkers. The parking facilities shown do not include those planned or operated exclusively by private individuals or companies.

HOLDEN M. LEROY
Senior Associate
Traffic Engineer
Detroit, Mich.





This is the City of Greensboro, N. C., showing how well the central district is protected by several encircling highways with a number of grade separations. Greensboro is one of those cities through which a railroad passes as indicated by the two open circles denoting railroad grade separations at and in the business district. The most interesting of long time parking facilities planned are the long areas at the left, or west of the business district (see close up of business district) as these are not smack in the central district as are the other areas.

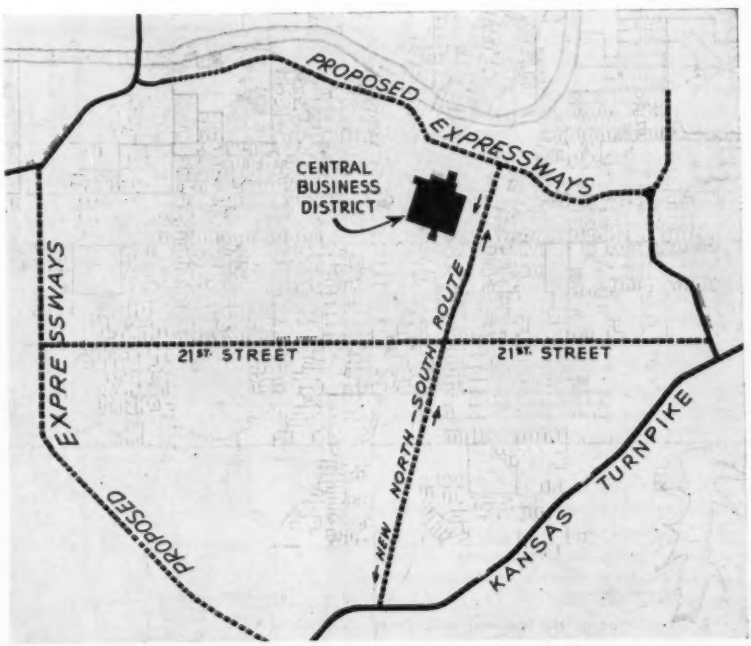
ROBERT J. KINLEY,
City Traffic Engineer, City Hall, Greensboro, N. C.

Program

By JOHN N. ROBERTSON
President
American Road Builders' Association
Washington 8, D. C.

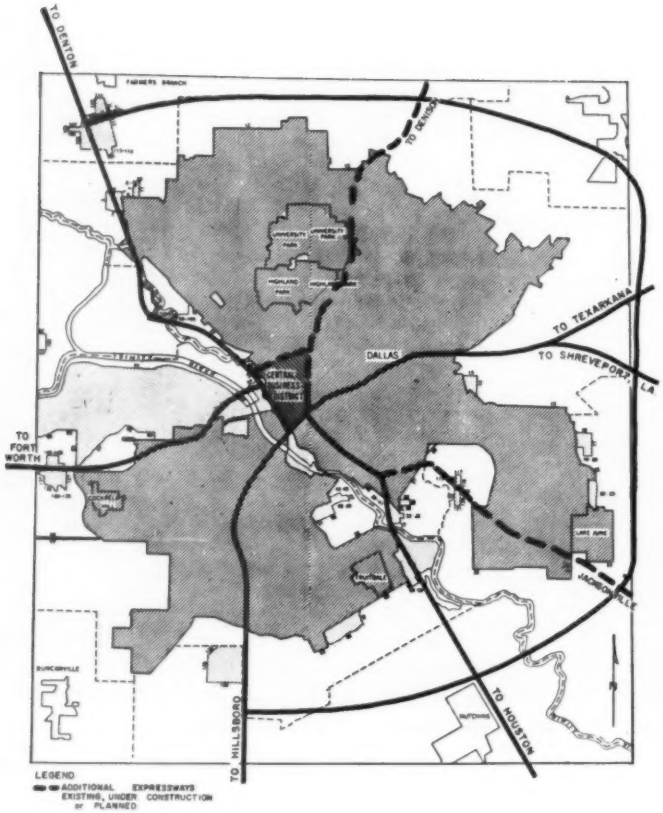
THAT cities are planning to connect their street systems to the interstate highways nearest them is portrayed by the city maps featured in this issue and to be featured in forthcoming issues of THE AMERICAN CITY and by those maps which appeared in the October issue. It may be in keeping to suggest that wherever it is presently feasible to make such connections, the cities make provision to do so. This is particularly pertinent where a city will do any of the work with its own forces and will require additional equipment.

For estimates show that the demands on equipment manufacturers will rise 200% in the next 5 years. Estimates call for 26 million tons of structural steel before 1970, 17 million tons of reinforcing steel, and 49 million tons of miscellaneous steel,



Our Topeka, Kans., city map shows the location of the proposed National Highway program, the Kansas Turnpike, and the proposed connections between the two systems, which, when completed, will form an outer belt of the highway around the city of Topeka. The central business district is shown on the map and is to be linked with the Federal System by 21st Street, presently designed as a major thoroughfare, and a new North-South route at the Eastern edge of the central business district. The city at present has no plan for long-time off-street parking facilities.

DARREL E. CLARK, *Planning Director, Topeka, Kans.*



Left.

Map of Dallas, Texas, with the supplementary expressways indicated on it by a dotted line. The city provides no commuter-type parking facilities, nor are there any planned at the present time.

W. H. Carsten
Department of Traffic Control
Dallas, Texas

Below.

Map of the City of Dayton, Ohio, indicating the major thoroughfares of that city plan. It is generally recognized that expressways in urban areas must tap the central business area and the central industrial area if they are to be of any real service to the community. Consequently, the location for U. S. 25 is shown tapping the west edge of the central business area with proper ramps on and off the expressway.

No immediate plans are being taken to develop any commuter lots or all-day parking facilities adjacent to the expressway. Our local parking association has kept pace with the demands for parking and, at the suggestion of the City Plan Board, converted all day lots to short-term lots in the core area.

Robert A. Flynn
Planning Director
Dayton, Ohio

including corrugated metal pipe. The roadbuilders will be looking for a billion and a half barrels of cement and 130 million tons of bituminous material.

Five years from now this road-building will result in the need for one million new traffic signs, and 5 million gallons of traffic paint in a single year.

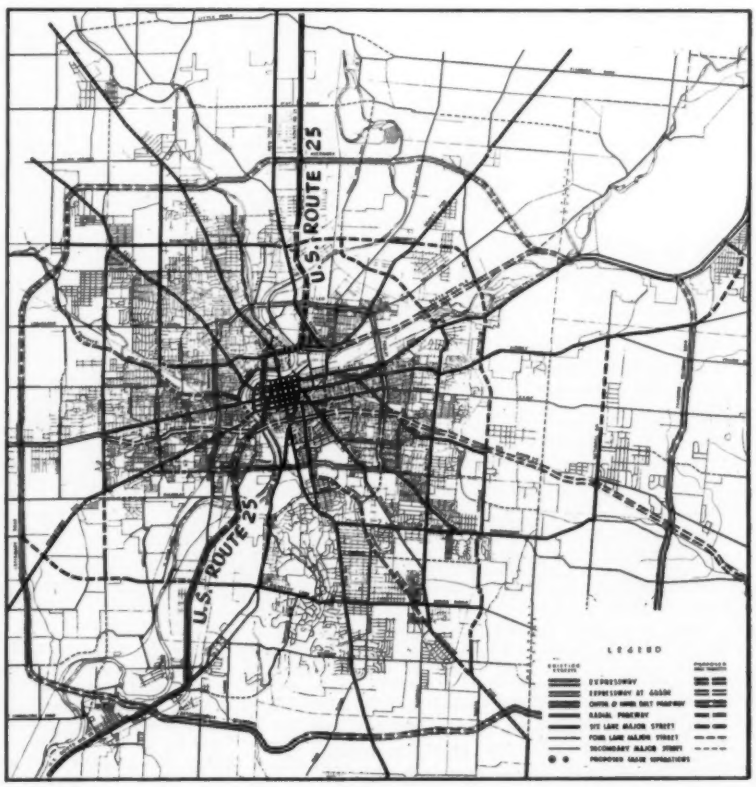
ARBA is the only organization in the U. S. embracing the entire highway industry and engineering profession in its broad membership. Through full cooperation of all of the varied road-building interests, we propose to maintain a close check on the progress of the new program. But trouble may be expected:

1. The ability of the states to meet the matching requirements of the new Federal-Aid program and, at the same time, provide sufficient funds for their normal highway work. They will resort to additional taxes, or to bond financing.

2. Acquisition of rights-of-way with time-consuming legal procedures. Also, educational work to obtain public acceptance of limited-access highways.

3. The existing shortage of engineers.

4. The availability of materials. Upon the very first indication of short supply, the reason must be found and removed.



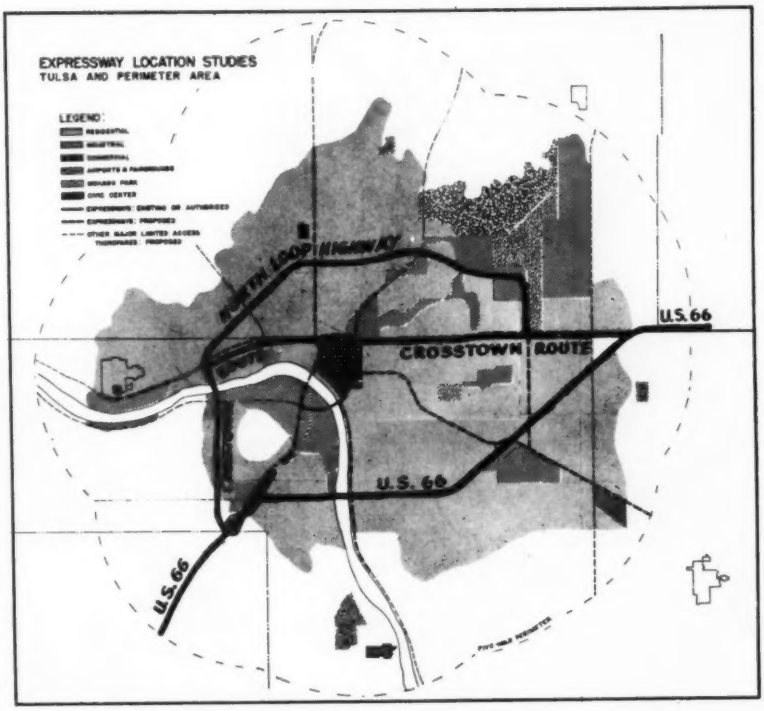
Right.
Plan of the Interstate Highway System in the vicinity of Tulsa, Okla. The lower highway indicates the by-pass around the south side of the city. This four-lane limited access road will be completed by July 1957. This by-pass and the Crosstown route will accommodate U. S. 66 traffic, as well as traffic from the Will Rogers Turnpike on the east and the Turner Turnpike on the west.

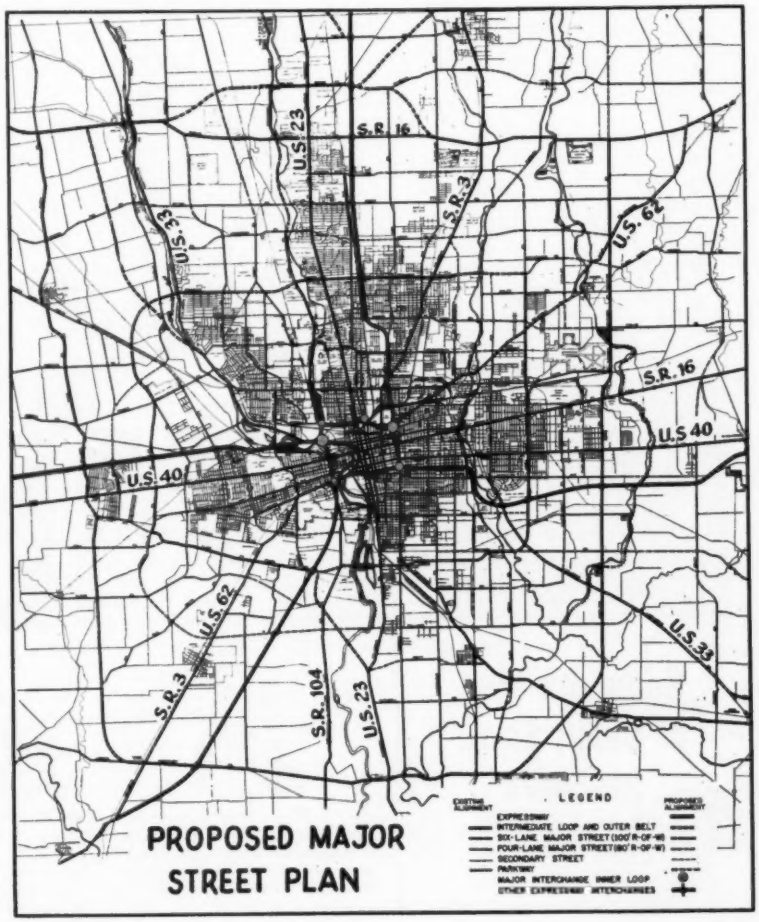
The Crosstown route on the immediate north side of the central business district, shown in the center, connects with U. S. 66 on the lower left side of the map, and bears an Interstate "system" designation. This route is expected to cost $17,971,000 for right-of-way and $10,370,000 for construction of the initial four lanes with the future development to six and eight lanes. Funds will be made available in 1957 for the engineering studies on this route, at which time it is expected that the "system" designation will be changed to "route" designation. A city bond issue is expected in the first half of 1957 for the city's share of the right-of-way costs.

Additional Interstate mileage has been applied for in the "North Loop" highway bypassing around the north side of the city. It is anticipated that it will be built some time in the future, following the Crosstown route. Feasibility studies have been completed relating the priority of development, costs, and road user benefits between the Crosstown and North Loop routes. On this basis the ratio of vehicle miles per day is 5.24 times as great for the Crosstown, and the ratio of cost per vehicle mile is nearly three times as great for the North Loop. Traffic volume on the Crosstown is estimated at five times that of the proposed North Loop.

There are no plans at the present time for location of additional parking garages or facilities adjacent to the highway system. The City of Tulsa does not own any parking facilities for public parking. Private operators have done a good job in our city in providing these spaces. At present, there are 7,500 off-street parking spaces in the downtown area. This is just about all that is economically justified, since many of these spaces are renting for $5 a month. The highest rates in the city are 35 cents for one hour and 25 cents for each additional hour.

NORMAN C. BARNETT
Traffic Engineer
Tulsa, Okla.





Right.
Map showing the location of the central business district of Columbus, Ohio, and the location of the inner belt expressway system now under construction.

JAMES V. MUSICK
Traffic Engineer
Columbus, Ohio

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Streamlined Urban Renewal Procedures Announced

THE OVERHAUL of reporting and application procedures, currently undertaken by the federal Urban Renewal Administration, will broaden and liberalize urban renewal programs for cities and towns across the country. This revision of urban renewal procedures will, according to Commissioner James W. Follin, permit greater flexibility in local project planning and shorten the time period in processing applications for redevelopment projects.

The Changes

The overhaul, begun earlier this year, is concentrating on procedural changes that will result in cutting red tape and simplifying paper work for local communities qualifying for federal urban renewal assistance under the Housing Act of 1954. The operation is the result of a comprehensive review of all urban renewal procedures made by a Procedures Simplification Task Force set up by the Housing and Home Finance Agency.

In general, the changes will aim at placing greater emphasis on direct review and consultation on local project progress through the UR's field staff and less on the review of detailed documentation by the Washington office. Principal changes proposed include:

1. Checking progress and planning development through personal field inspection reviews in place of formal documentation wherever possible. This is aimed at promoting better mutual understanding and cooperation between the federal officials, and local officials, and will enable projects to proceed more rapidly.

2. Elimination of an interim planning report on renewal projects between initial application and the final planning report to shorten the period between the initiation of planning and the execution of a loan-and-grant contract.

3. Elimination of detailed planning. Under the new procedure only general data on the character and nature of an area will be required at the time of application, leaving final determination until detailed planning and survey data are developed.

4. Permitting detailed plans for public improvements and land disposition, clearance and redevelopment to be completed after the project is approved for loan and grant assistance. This means a liberalization of preliminary planning funds for local communities.

5. Giving greater authority to regional offices, such as in the processing and supervision of planning grants; relying on legal as well as technical reviews from the regional office as a basis for policy determinations in Washington. This will reinforce the idea of urban renewal as a local activity.

Red Tape to Be Cut

The present procedures overhaul is expected to eliminate or at least reduce what local redevelopment officials term major barriers to renewal activities. Earlier this year a national survey conducted among local redevelopment officials listed paper work and exhaustive formalities of project procedures as the worst problems in federal aided redevelopment programs.*

The Task Force is made up of officials from the different divisions of the HHFA with Harold F. Alderfer of URA as chairman. In its work to solve administrative and procedural problems of the URA it has called on consultants and professionals from the community and related industry field.

*See "Surveying the Barriers to Local Redevelopment Progress" by Morris D. Smith in THE AMERICAN CITY, March 1956, p. 154.

Aerial Survey Prepares County Tax Maps

TWO Pennsylvania counties, Chester and Schuylkill, are currently preparing tax maps from aerial surveys. Over 400 air photos covering the two counties currently have been made. The photo scale is 1 inch per 2,000 feet. Each 9-inch by 9-inch photo covers approximately 11 square miles.

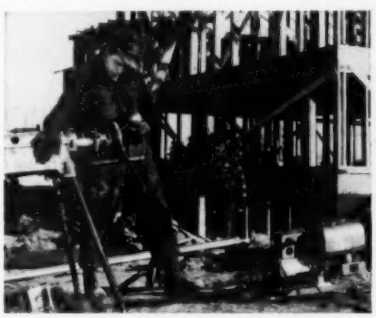
About 60 photogrammetrists, field editors, and technicians will be engaged in the two-year aerial inventory of all properties in these counties. All deeds will be microfilmed, and the air survey and field audit will provide a complete inventory of every property in the county. Performed in accordance with Pennsylvania laws, the surveys are expected to yield much useful data for the county tax assessors. Total cost of the two surveys will be in the neighborhood of $450,000. The work is being done by Aero Service Corporation, Philadelphia, Pa.

Tax maps for Lehigh and Northampton Counties, Pa., were completed recently, and a tax survey for Bucks County is almost done. Both works were handled by Aero.

Homelite Now Has Full Line of Carryable Construction Equipment

Self-Priming Centrifugal Pumps . . . Carry these lightweight, dependable pumps anywhere. Non-clogging design . . . 28 foot suction lift . . . capacities up to 15,000 g.p.h. . . . sizes from 1½" to 3". Diaphragm pump also available.

Builder's Hammer . . . Gouge, drill or chisel in any type of material — faster, easier, and at lower cost — with a Bosch (Germany) Builder's Hammer. Automatic rotary impact action for drilling. Either 110 volt AC-DC or high-cycle motor. Powerful, high-cycle rock drill also available. Both tools may be powered by a Homelite carryable generator.



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PORT CHESTER, NEW YORK

MONOTUBE POLES . . . GOOD FOR MIAMI NIGHT AND DAY.

Here on Miami, Florida's important 27th Avenue, Monotube poles are just as attractive as they are effective in contributing to the city's progressive street lighting modernization program.

These recently installed Monotubes, with transformer base and twin upsweep brackets, combine outstanding appearance, strength, low maintenance and complete conformance with recognized lighting practices. It's these features that appeal to economy-minded, safety-minded city and utility officials as well as benefiting motorists and pedestrians.

For complete-line catalogs or helpful planning service, write today to The Union Metal Manufacturing Company, Canton 5, Ohio.

1906 *Fiftieth Anniversary* 1956

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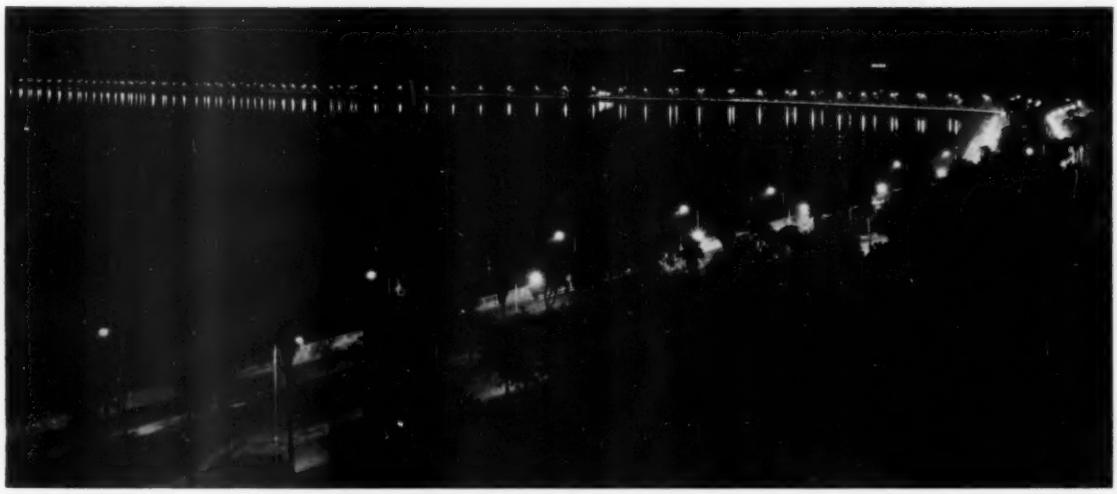
Monotube Lighting Poles



Tampa's Bayshore Boulevard where it starts to wind around Hillsborough.

Mercury Vapors Replace "Five Lights"

By JAMES A. BARTON
Illuminating Engineer
Tampa Electric Company

Light of quality has reduced traffic accidents

MORE than 20 miles of mercury vapor street lights have been installed along business streets and traffic arteries of Tampa, Fla., and 30 more miles of mercury vapor lighting are scheduled. The program will extend to lesser business and traffic streets, and includes great numbers of self-contained multiple incandescent units in residential areas. Incandescent units are usually of the 200-watt size with individual photoelectric controls.

Franklin Street Installation

In 1950, the first mercury vapor installation was made on Franklin Street, Tampa's main street, and consisted of 11,000-lumen luminaires spaced oppositely 105 feet apart. Old five-light clusters, installed in 1910, had previously lighted the street. Luminaires are 28½ feet above the pavement with an overhang of 4 feet. Maintained illumination is approximately one foot-candle. The 20,000-lumen luminaires used in other parts of the city are mounted 30 feet above the pavement, and are spaced 150 to 175 feet apart.

Contrast Evident

Contrast between the old five-light clusters and modern mercury vapor lighting is unmistakable. Clusters had four 60-watt and one 100-watt lamps.

Mercury vapor luminaires in the downtown area are installed on steel poles with underground wiring. In outlying areas, many of the units are installed on wood poles with overhead wiring.

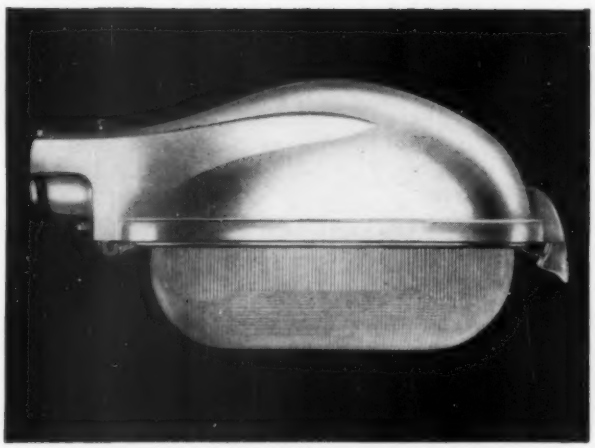
On a portion of Tampa's Bayshore Boulevard, single steel poles with two arms and two 20,000-lumen fixtures are located in the center 6-foot divider strip. Old lights replaced on a portion of the Bayshore Boulevard were originally gas lights, converted many years ago to 1,000-lumen series lights.

Before and After Lighting a Section of Bayshore Boulevard

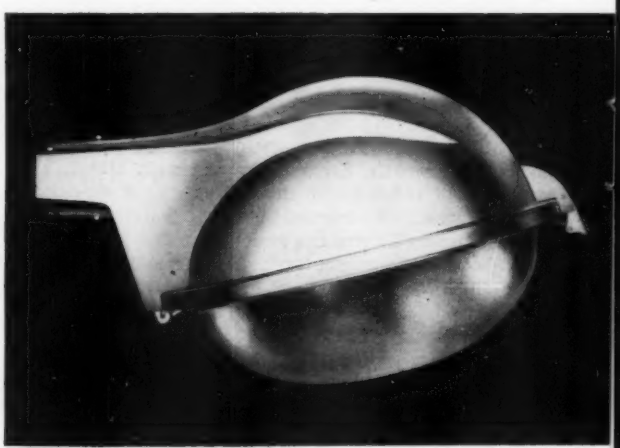
Accidents	1954 Jan.-Sept. included	1955 Jan.-Sept. included	% Reduction
Day	33	24	27
with injuries	5	1	80
with fatalities	0	0	
Night	21	14	33
with injuries	7	4	43
with fatalities	3	0	

In all cases, street lighting installations have been installed, financed, operated, and maintained by the

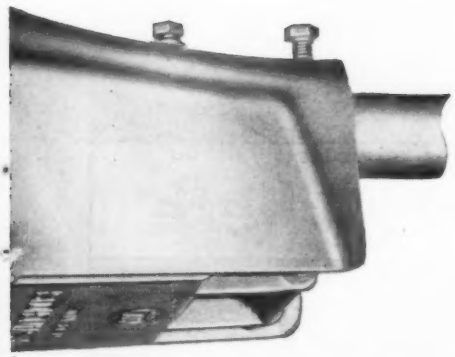
(Continued on page 149)



OV-20 uses 11,000-lumen CH-5, 15,000-lumen AH-1, 20,000-lumen EH-1, and 19,000-lumen JH-1 mercury lamps. Type II, III and IV distribution.



OV-60 uses 35,000-lumen AH-18, 33,000-lumen BH-18, 52,000-lumen AH-15, and 49,000-lumen BH-15 lamps. Type IV distribution.



New Westinghouse OV-35

. . . the first luminaire designed specifically for fluorescent mercury lamps

Westinghouse, pioneer in the development of mercury street lighting — the OV-20 and OV-60 — now presents the OV-35 luminaire which can be used with the 400-watt J-H1 or the 700-watt B-H18 fluorescent mercury lamps.

This third member of the Westinghouse mercury group now offers you a complete selection of mercury luminaires for any roadway application — regardless of width or traffic conditions.

The new OV-35 is the first street-lighting luminaire to include a completely sealed optical system — bugs, dirt or moisture cannot get in. Like the OV-20 and the OV-60, this new luminaire assures the best possible night visibility and a greater uniformity of pavement brightness. It inherits their same outstanding plus features, too . . . such as one-piece cast aluminum housing, new optical system, one-hand maintenance, and smooth good looks.

Whatever your roadway lighting requirements, be sure to specify Westinghouse mercury luminaires. More information? See your nearby Westinghouse representative. Or, write Westinghouse Electric Corporation, Lighting Division, Edgewater Park, Cleveland, Ohio. J-04405-X

WATCH WESTINGHOUSE!

*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU**!*

the P&K story

HIGHWAYS

DRIVE-INS

BETTER LIGHTING everywhere

SHOPPING CENTERS

PARKING AREAS

RECREATION AREAS

AT LOWER COST to everybody

Pfaff & Kendall, originator of the Seamless Tapered Aluminum Lighting Standard and Tapered Elliptical Arm, is now producing designs and types to meet any highway, road, area, bridge and traffic signal requirement.

Wherever P & K All-Aluminum Standards and Brackets are specified and installed, the story is the same: *Fewer technical problems . . . rapid, easy installation . . . greater lighting efficiency . . . and the kind of economy you can figure in actual dollars!*

P & K All-Aluminum Standards and Brackets are always the wisest choice . . .

LIGHT WEIGHT for lowest cost installation.
NEGLIGIBLE CORROSION for longest service.
NO PAINTING means large, year-after-year savings.
SALVAGEABLE, RE-USABLE in event of knockdown.

WRITE FOR LATEST P & K CATALOG... and use the P & K planning and advisory services without obligation.

Pfaff & Kendall
84 Foundry Street
Newark 5, New Jersey

(Continued from page 145)

Tampa Electric Company. Street-lighting service is sold to the City of Tampa by the Tampa Electric Company. Rates are based on the type and size of bulbs, whether they are on steel or wood poles, and whether wiring is overhead or underground. All of the new lights burn all night, or approximately 4,000 hours per year.

City traffic planner Captain John Flaherty, lists statistics covering a period of nine months before and after the lighting of a portion of the Bayshore Boulevard in the table on page 145.

New Fluorescent Lamp With 2½ Times More Light

The new Sylvania fluorescent lamp provides 2½ times as much light as conventional models. Heart of the lamp is the cathode shown at the left. The black bubbles at the base of the lamp are condensed mercury in the pressure control center. Features are: efficient lamp diameter; rapid-start continuous filament heating; pressure control center; neon gas instead of argon.

WHEN we introduced our mercury vapor lamps in March 1956, we pointed out that there had been a 68% average reduction in fatalities in cities which properly relighted their streets. In a single year, modern street lighting in the U. S. could save 10,000 lives, 270,000 injured persons, $750,000,000.

New lamps we are offering will initially be available only in the popular "Cool White" color. There are two models respectively, 100 and 200 watts, 4 and 8 feet, 6,200 and 13,250 lumens. They can be used indoors or outdoors, within the normal range of temperature common to well-designed luminaires.

Most current street lighting luminaires are designed for T12 lamps 6 feet long, and it is probable that our new VHO lamps will be made in this 6-foot dimension to increase the light output of currently designed equipment. However, it is now possible to design fixtures only 4 feet long, using these lamps, and provide more illumination than the present 6-foot design.

The street lighting luminaires are suitable for floodlighting parking lots with a minimum number of fixture units. Excellent lighting at low cost is obtained and automobile body colors appear normal.

LAWRENCE P. PLEASANTS
Lighting Division Merchandising Manager
Sylvania Electric Products, Inc.

New Mercury Luminaires

Wheeler LLB Crescent mercury luminaires on U. S. 1 in Old Lyme, Cona.

A NEW 48-inch linear low brightness mercury luminaire is offered in all the commonly used Illuminating Engineering Society standard street-lighting patterns. It is shown here lighting a modern highway in Connecticut. This new mercury unit is said to have the low brightness characteristics of fluorescent street-lighting luminaires, but far exceeds fluorescents in efficiency and control.

This is a product of the Street Lighting Division of Wheeler Reflector Co., 275 Congress St., Boston, Mass. Wheeler's continuing program of research and development has also resulted in other new products, including a small all-aluminum crescent reflector. Still others are the porcelain enameled crescent reflector which has been so successful in recent years, and a new four-way crescent reflector.

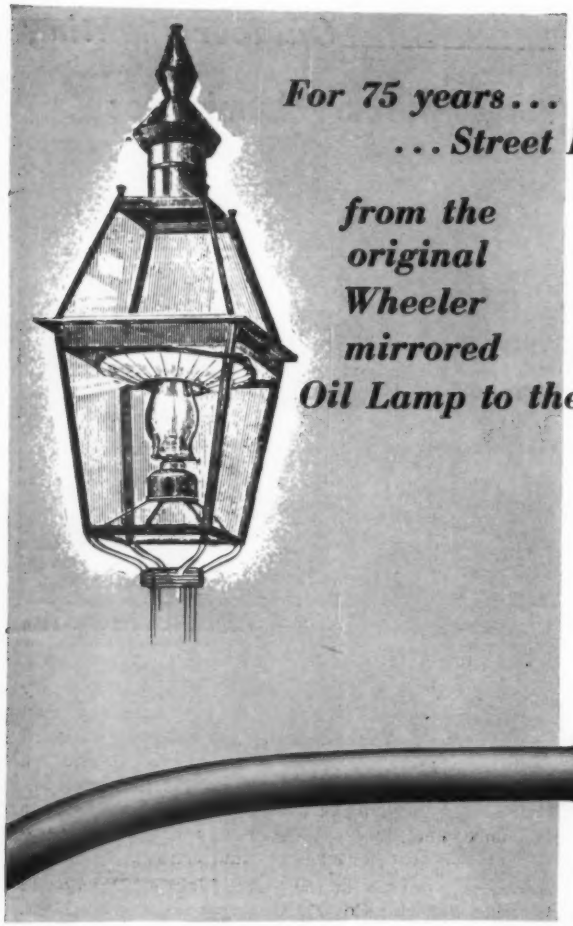
Lighting Highways

THE greatest single factor contributing to the reduction of after dark traffic accidents on modern, limited-access roadways is good seeing by the operator of a motor vehicle. This factor includes visual comfort and alertness, as well as visibility.

The $101-million 10-year highway program represents well over four times the $21 billion invested by all levels of government during the past 10 years. This program contemplates well-lighted highways.

Many lighting problems encountered on modern, limited-access roadways cannot be handled by standard street-lighting luminaires. A few such instances are covered in a very practical manner in a 28-page brochure, "How to Light Turnpikes and Expressways," that is available from the General Electric Company, One River Road, Schenectady 5, N. Y.

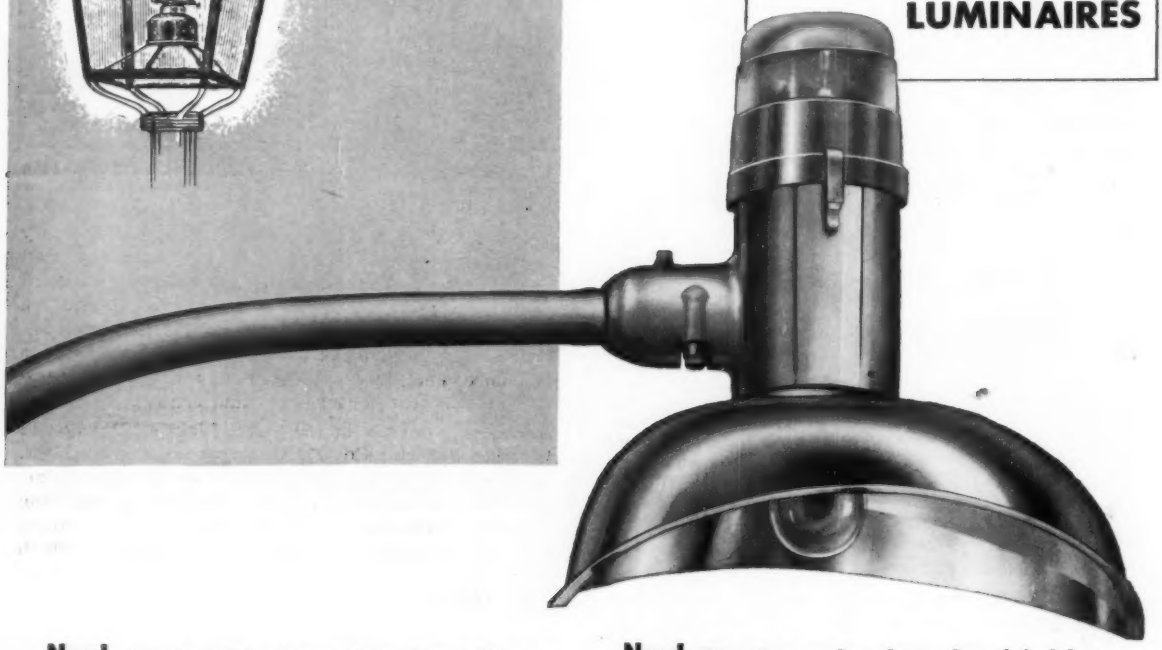
The recommendations given in the brochure for lighting hazardous areas on modern, high-speed turnpikes and expressways are based on more than 30 years of working closely with local, state, and federal au-



For 75 years...
...Street Lighting for a safer America!

from the original Wheeler mirrored Oil Lamp to the modern

INTEGRAL PHOTOELECTRIC CONTROL LUMINAIRES



New! Another Wheeler engineering achievement that makes street lighting budgets go further. A low cost, small multiple head with integral photoelectric control. Inside or outside wired for Screw Ring or Groove Neck style of Reflector attachment.

New! Wheeler quality throughout! A deluxe All-Aluminum Crescent Reflector providing I. E. S. type I or type II distribution. Aluminum Crescent available with all EEI-NEMA standard type necks. Other types also available.

Experimental installation of Wheeler Crescent-48 Luminaires on U. S. Route 1 in Old Lyme, Conn., pioneering Linear Low Brightness Mercury Street and Highway Lighting.

75th Anniversary
1881 1956

Wheeler REFLECTOR COMPANY

275 Congress Street, Boston, Massachusetts

thorities in lighting many of today's limited-access roadways. Specific areas, such as toll plazas, interchanges, bridges, etc., include application diagrams showing the types and spacing of luminaires proved most effective. Alternate methods are suggested.

Toll plazas often require a higher level of visibility than any other area on turnpikes and expressways. They are often in remote locations and require clear indication to the vehicle operator of a full-stop area. Many methods of lighting these areas have been applied, and two types of luminaires are generally accepted. These are the mercury luminaire and the fluorescent luminaire.

Mercury luminaires provide excellent illumination and long lamp life and low energy consumption. They can be operated from low-voltage multiple or constant-current series circuits.

More and more fluorescent luminaires are being specified for toll plaza illumination. They have comfortable seeing characteristics and true color discrimination, and low operating cost. Good pavement brightness and uniformity of light distribution are inherent in fluorescent luminaires. These units can also be operated from low-voltage multiple or constant-current series circuits.

The arrangements and mounting heights given below for both mercury-vapor and fluorescent luminaires may be considered typical. For narrower or wider plazas, different spacing of poles may be necessary; heights may change.

75-foot-wide toll plaza using mercury luminaires with 400-watt, mercury lamps. Average foot-candles maintained 2.0-2.5 with luminaires mounted at 30 feet. Fluorescent luminaires use four 72-inch rapid-start fluorescent lamps. Average foot-candles maintained 1.25-1.5 with mounting height of 30 feet.

150-foot-wide toll plaza with mercury luminaires using 1,000-watt mercury lamps. Average foot-candles maintained 2.5-3.0 with 32-35-foot mounting height. Fluorescent luminaires use twelve 72-inch rapid-start fluorescent lamps. Average foot-candles maintained 1.5-2.0 with mounting height of 32-35 feet.

Interchanges handle the flow of vehicles on and off high-speed roadways. The lighting is partly warning, but mostly for improving seeing in a critical area. Exit and entrance roadways are narrower than high-speed through-traffic lanes. The 50- to 70-mph of motor cars on limited access roadways make it desirable to illuminate adequately acceleration and deceleration lanes relative to exit and entrance roads as an added warning to drivers. Mercury and filament luminaires are recommended.

Either the Type II, for roadways 30 feet or less in width, or Type III, for medium and wide roadways, lateral light distribution pattern can be employed. Regardless of type of pole used, bracket length should be such as to place luminaires 3 to 5 feet over the driving lane.

Where vehicular traffic is medium or light, and where a shopping center may exist adjacent to the interchange, filament luminaires are commonly used. Their color quality is well suited to this application, especially where fairly heavy pedestrian traffic is encountered. Luminaires are of 6,000, 10,000, and 15,000 lumens, with the larger units more economical for the wider, high-speed, through-traffic lanes.

The growth of limited-access highways has accentuated the importance of the service area. Initially a stopping place for car needs, the long distances of many super-highways has made the inclusion of eating facilities mandatory. The high speeds on super-highways make it desirable to illuminate well ahead of deceleration lanes as a warning of service area locations. Principal lighting systems are the mercury and fluorescent.

The fluorescent luminaire is becoming increasingly popular for service area illumination. This is particularly true in the restaurant parking areas, where car passengers seem to prefer the more natural color appearance. At a typical service area with gas and restaurant facilities, the average calculated illumination level is 1.25 to 2.5 foot-candles maintained using mercury luminaires with 400-watt, color-improved mercury lamps mounted at 30 feet. Using 4-lamp fluorescent luminaire with 72-inch, 100-watt rapid-start lamps mounted at 30 feet, the average calculated illumination level is 1.0 to 2.0 foot-candles maintained.

Traffic Lanes

The continuous lighting of main traffic lanes on limited-access roadways is not a common practice due to cost. Such lighting is desirable where the interchanges are one-half-mile apart or less. Fluorescent, mercury, and filament luminaires have all been used.

The lighting of bridges and viaducts is similar, with the width of roadway and traffic flow, both vehicular and pedestrian, indicating the illumination levels. Either fluorescent or mercury luminaires may be used with maintained illumination levels in the range of 0.75 to 2.0 foot-candles.

Scott City Relights at Last

MAIN STREET and Fifth Street, which carry Federal Highway 83 and State Highway 96 through Scott City, Kans., have been relighted. The old light standards on Main Street have been removed after serving since 1912.

Incorporated in 1886, in the late eighties Scott City had almost as large a population as it has today (3,200), and there was a homesteader's dwelling on almost every quarter section in the county. Drought and depression in the nineties caused a dwindling in population, both city and rural. Only the hardy souls remained. Before 1900 the population of the city had dropped to 250. But in the early years of the present century a steady growth began and it has continued to the present day, with only a minor set-back in the unlamented thirties.

Primitive is the word for the early years. Sod houses and simple frame structures were the rule. The common fuels were cow chips and coal. Lighting in homes and stores was by kerosene lamps.

It was not until 1912 that there was a plant for generating electricity for public use. In that year the citizens voted in favor of a bond issue to raise $40,000 to finance an electric plant and waterworks. The gen-

modern note in highway planning...

HAPCO Aluminum Lighting Standards

More and more highway planners are specifying Hapco Aluminum Poles for street and highway lighting. That's because Hapco Standards offer so many advantages over conventional types. Over-all lighting costs are reduced to a minimum since lightweight Hapco Aluminum Poles install easier, require no maintenance. First and subsequent maintenance paintings are never necessary.

Sturdy Hapco Aluminum Poles are spun from Aluminum Alloy, heat treated for maximum strength. They are built to withstand the stress of severe weather and wind conditions without taking permanent set. Their high resistance to corrosive atmosphere makes them particularly suitable to industrial and coastal installations. Besides dollars-and-cents benefits, the classic Venetian column design and silver grey beauty blend well with surroundings lending top eye-appeal to the completed job.

HUBBARD ALUMINUM PRODUCTS COMPANY

Division of Hubbard & Company
Pittsburgh 1, Pa.

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erating plant was located in the building on East Fifth Street, now occupied by City Hall. Included in the equipment was a 40-horsepower and a 20-horsepower oil-burning engine. The generators fed into large cumbersome storage batteries and the product served to the public was direct current. A street lighting system was set up. This was the method from 1912 to 1920.

In 1920 a bond issue provided for raising $35,000 for a new generating plant. It housed new engines that produced alternating current. In the prosperous twenties the use of electricity expanded greatly.

In 1930 city officials accepted an offer by Inland Utilities to buy the municipal electrical and water systems for $210,000. So, in the depression decade, Scott City was relieved of the burden of financing these utilities.

As the end of the franchise period approached, the company had an opportunity to sell its property to the Wheatland Electric Co-operative. Wheatland took over existing property in 1949 and began construction of lines to reach into rural areas. A loan of $5,400,000 was secured from the Rural Electrification Administration in Washington. But there was no improvement and no franchise for Scott City. Years passed.

Negotiations Intermittent

Negotiations between Wheatland and city officials were intermittent. The public heard conflicting reports on the reason for delay. Meanwhile, service was not satisfactory, as the distribution equipment in the city was old and inadequate. Also, charges were held to be exorbitant. Rates in Scott City were higher than in nearby Syracuse, another town in the Wheatland system. Street lighting charges were far too high for the benefit received. Problems seemed insoluble.

Agreement Reached

But patience and persistence were rewarded, finally. In 1955 agreement was reached and a franchise drawn, acceptable to both parties. It was agreed that the distribution system was to be rebuilt completely. New street lighting was scheduled for the entire city.

Early in 1956 the co-operative began rebuilding the lines and replacing distribution equipment in Scott City. The other Wheatland towns are getting improvements, too.

The street lighting on Main Street and on Fifth Street was ready for use by late May. On May 21 a ceremony was held on Main Street to celebrate the change. At long last the city had a White Way.

The Goal

When the rebuilding of all lines within the city is completed, there will be 45 General Electric fluorescent fixtures extending over nine blocks in the business district. Each fixture has a 21,000-lumen rating. These are on Union Metal steel poles. Also, there will be 46 poles with incandescent lamps of 6,000-lumens. In the residential area there will be 143 lights, each 2,500-lumens. The equipment belongs to the Wheatland Electric. The rate charged to this city is two cents per kilowatt hour.

Scott City, Kans., at night prior to May 21, 1956, is shown in the insert. Note the tall fluorescent units biding their time. Main Street now bursts through the darkness via 21,000-lumen fluorescents.

"Our traffic regulates itself through new CROUSE-HINDS Time Cycle Control System"

—Mr. H. J. Hoose, Traffic Engineer, Charlotte, N. C.

"Five years ago we installed a variable-time cycle Trafflex control system that relieved much of our downtown congestion. But we still found such unpredictable volumes during peak periods that the programmed cycle changes couldn't keep pace.

"It took Crouse-Hinds new Time Cycle Control by Traffic Density to eliminate Charlotte's traffic headaches. Now, by using Crouse-Hinds' new Traffic Density Master Controller in conjunction with our Trafflex Control System – *the flow of traffic controls the time cycle . . . automatically and instantaneously.*

"Detectors placed at strategic points transmit traffic volume to the Master Controller, which evaluates the density and immediately makes necessary changes in the time cycle to relieve congestion. This has resulted in less accumulation of traffic at intersections and less traffic build-up prior to peak periods. In short, we have found that Crouse-Hinds' Time Cycle Control by Traffic Density permits our system to operate at *maximum efficiency at all times.*"

The ideal solution to your traffic problem may be Crouse-Hinds Trafflex Control System with new Traffic Density Master Controller. Present users of Trafflex systems may add this new accessory to existing facilities. Write for full details.

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The new street on the far side of this parking area has ramps up to Main Street Bridge. There are 1,844 car spaces in the layout, and a filling station is to be built. The vessel in the foreground is a naval floating power plant leased temporarily to the City of Jacksonville, Fla.

Jacksonville's 1,844-Stall Off-Street Asset

By GUY BROWNING ARTHUR

JACKSONVILLE'S new municipal parking project provided much-needed off-street parking close to the business area, and reclaimed a most unsightly water front.

Jacksonville is municipal-ownership minded. The lighting plant and distribution system serving a large metropolitan area as well as the city, the water and sewer systems, docks and terminals, airports, radio station, and golf courses are owned by the city.

But until recently all parking has been in the hands of private operators. Congestion on the streets has increased. Soon all parking may have to be banned on the thoroughfares.

The first effort was legislation authorizing the city to issue revenue bonds for $1½ million for fringe parking lots. A storm of opposition stopped this, coming from property owners who objected to having their holdings forcibly converted into parking lots, and from owners of adjoining property. Out of that dispute came new legislation permitting a bond issue of $3½ million for the river-front project. A bond issue for $4,000,000 was passed.

Main Street is the north and south artery, carrying U. S. Highway 1 through the city. The bridge across the St. Johns River is a monumental structure for land traffic, but its construction played hob with ocean shipping which formerly used the nearby piers. Ocean-going vessels could not maneuver into these berths. So the water front for four blocks deteriorated into a row of abandoned buildings.

Consulting engineers made an exhaustive survey and report which called for off-street parking close to the business center.

River Front Parking Popular

The idea of using the river front for a municipal parking lot was popular, both because of the new space for cars and also because it would give the city a beautifully landscaped frontage on the river. Hidden in the plan was a new street to be opened on the land side, with ramps up to Main Street bridge. The plan included a perimeter road along the pierhead under the bridge, giving a valuable connection between the two parts of the area. This is important because left turns from Main Street are prohibited, and the downtown streets are one-way.

As a third increment, all property facing on Bay Street, the first street north of the bridge, can now face both ways, opening fronts on the new street along

the recently constructed water-front parking area.

The pierhead line established by U. S. Engineers stands about 400 feet out in the river from the existing property line on the north side. The four blocks in the new area are 1,600 feet long, and the reclaimed area contains 17½ acres. As laid out and constructed, it provides 1,844 stalls, each 20 feet deep and 8½ feet wide, with 20-foot lanes between each two rows of stalls.

By city ordinance, no more than half the spaces may be rented to monthly parkers, to insure fullest service to shoppers and other short-term customers.

The practical capacity of the lot will be reached in about the tenth year of operation. After that, more space can be provided by reducing the number of monthly parkers, by reducing the width of the stalls, or by building a deck over the area.

The charge is 60 cents for eight hours, and 75 cents for eleven hours or longer. The monthly fee is $10. Attendants are on duty from 7:30 a.m. to 7:30 p.m., Monday through Saturday.

Retail gasoline dealers objected to the building of a service station in the lot, but this was included in the financial prospectus with an estimated revenue of $14,000. It has been ruled that the station must be built to keep faith with purchasers of the bonds.

Construction

The larger part of the area was under water that ranged from 2 feet to 22 feet in depth. Warehouses and piers had stood on piles, except for their shore ends. The soft muck and silt which overlay the firm bottom were removed by suction dredging.

Steel piling was driven along the pierhead and back to solid ground at the ends. The area was filled and paved with asphalt, taking care to crown the surface in several directions to carry water off quickly.

The installation was designed by Smith, Reynolds and Hills, Jacksonville architects, and the equipment was installed by city forces. Aluminum poles stand in rows of three, about 140 feet apart. There are ten of these rows in which the poles have twin up-sweep arms, and six poles on the ends with only one arm. These are Union Metal poles and brackets. The General Electric luminaires are for 10,000-lumen clear white incandescent lamps mounted 25 feet above the ground.

Total cost of the project was $4,188,750, of which the city has to raise $188,750, probably from parking-meter receipts. The 1,658 M. H. Rhodes Mark-Time meters now in use gross about $160,000 a year.

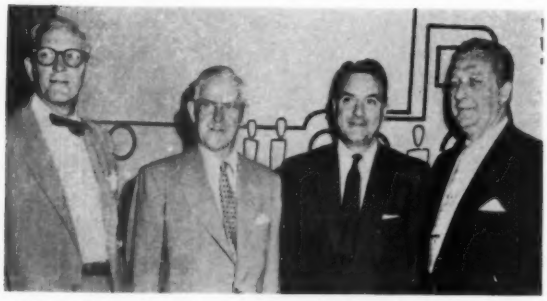
Assumptions in the Engineers' Estimates

Worthy of note for any city studying the off-street parking problem are four assumptions in the estimates of the consulting engineers:

1. That the proposed facility will be efficiently operated and adequately maintained;
2. That suitable signs be located on approach streets;
3. That the proposed facility be effectively advertised;
4. That there will be strict enforcement of the curb parking regulations in the area of influence of the facility.

These assumptions are valid for Jacksonville. A municipal parking lot is a business. It must attract and hold trade, cultivating a clientele of satisfied customers. It must be in demand. So these assumptions at the end of the engineers' report on this project in Jacksonville might well be the basis for a survey of a similar project in some other city.

Cooking Up Solutions to Cook County Traffic Woes



At *The Chicago Tribune's* second "Chicago Horizons" meeting participants included (left to right) George W. Barton, president of the traffic consulting firm of George W. Barton & Associates; Walter C. Cleave, vice-president of the investment house of Blyth & Co.; Earl Kribben, vice-president in charge of civic affairs for Marshall Field & Co., and Franklin M. Kreml, director of the Transportation Center at Northwestern University and moderator of the second Chicago Horizons panel.

$1,500,000,000 Going to and from Work

LOOKING at transportation from the viewpoint of people going back and forth to work, there is a total of 650,000,000 hours consumed annually by the 2,600,000 people employed in metropolitan Chicago. Taking their average hourly pay, we find some $1½ billion worth of time being spent in transportation.

W. C. KURZ
Advertising Manager, Chicago Tribune

Fringe Parking Needed

IF we have properly designed, properly located fringe parking facilities, with good fast service connecting those facilities with downtown destinations, I think we may stimulate the use of fringe parking areas and reduce downtown congestion.

However, when we get the people downtown, we also need a better method of distributing people from transit terminals to specific downtown destinations.

If you have good outlying parking facilities, faster service to downtown, and a good way to be carried to your destination within the central area, I think fringe parking areas will suddenly begin to have meaning.

Private Autos in Business District?

REMEMBER 11% of the traffic are transit vehicles; 12% are trucks; 34% taxis; and 43% automobiles. Wiping passenger autos from the central district would not solve the problem. As a long-range goal it is

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Traffic Control

desirable to keep all vehicles out of the loop and have a place where it is relaxing and pleasant; where the pedestrian can stroll along: where it is nice to live and work and do business.

GEORGE W. BARTON
Traffic Consultant

More Transit Needed

THE most important thing is the development of the rapid transit programs which have been contemplated, for the median strips on the rapid transit and the expressway systems.

WALTER C. CLEAVE
Vice-President, Blyth & Co.

Help Transit Serve

INITIAL emphasis should be placed on creating a metropolitan land use planning board and giving it the tools with which to work. Beyond this, our future emphasis must be laid on providing additional facilities for mass transportation companies. Such facilities have fallen behind our needs in recent years and are out of balance with the facilities provided for automobiles and trucks. After all, our transportation problem is one of moving bodies and goods quickly and economically. Government faces up to its responsibilities in providing streets, roads and expressways, airports and right-of-ways for railroads. Such public developments have helped build the nation and free enterprise. More are now needed in the form of transit facilities to permit continued metropolitan growth.

EARL KRIBBEN
Vice-President, Civic Affairs
Marshall Field & Co.

Traffic and Transportation

EVEN as we discuss the traffic problem here this afternoon, transportation continues its dynamic growth, and in this growth reshapes our country and our cities.

"The practical results of the lack of coordinated planning and action, according to Frederick T. Aschman, consultant to the Chicago Plan Commission, "are inadequate transportation, deficient water distribution, poor sanitation, new blighted areas and the engulfment of suburbs in waves of new growth."

Mr. Sheldon, vice-president of Charles A. Stevens & Company, said:

The unparalleled record of modernization by the Chicago Transit Authority, the 245 million dollar Cook County expressway program, and the metropolitan toll roads are all vital measures. But, an even greater part of the challenge is to plan today to meet the coming requirements of the two-million-person increase in population expected by 1980. The bulk of our new growth must take place in parts of the metropolitan area which have little or no good transportation access. We will need additional expressway construction, modernization of many of our streets, and greater effort to put more public mass transit on its own right-of-way.

FRANKLIN M. KREML
Director, Transportation Center
Northwestern University

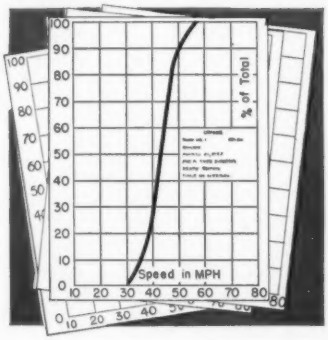
Connecticut's forward-looking State Highway Department is among those engaged in a comprehensive program of setting up realistic speed zones on today's highways for today's cars.

ELECTRO-MATIC® RADAR assures realistic speed limits . . .

The first essential in the process of setting zone speeds is the determination of current speed patterns. The Electro-Matic Radar Speed Meter is now the accepted means by which traffic engineers obtain speed characteristics of vehicle flow on all types of highways.

Highly accurate under all conditions of traffic and weather, it is inconspicuous and operates without contact-making devices on the road surface. The Meter is easily portable and requires only one man for operation. It can be set up in less than three minutes. Operation is on 6 Volt or 12 Volt battery or 120 Volt A.C.

A Graphic Recorder provides a permanent record for study and analysis leading to the preparation of speed distribution curves and other data essential to instituting a realistic system of speed zoning that goes hand in hand with modern enforcement techniques.



For more information on the Radar Speed Meter, request Bulletin R-112

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TO SOLVE TRAFFIC AND PARKING

PROBLEMS, YOU SHOULD KNOW . . .

How to Make Your Transit System Rapid

When public transit has "room to move," it can provide the margin of speed and convenience needed to encourage people to ride instead of drive. With this margin, public transit can play its logical, effective role in relieving problems of congestion and lack of parking space.

A solution to the traffic-parking problem won't "just happen" however. Our transit systems must be made "rapid" so that people will want to use them. This means that transit needs your support for three important measures:

1. **Private rights-of-way are needed** so that transit vehicles are not slowed by regular street traffic.
2. **Space for outlying parking lots is a must** so that transit riders will want to leave their cars outside the city.
3. **Transit stops must be sensibly spaced** so service can be truly "rapid." Riders then get fast, convenient rides.

For further information on "How to make your transit system rapid," write Section 107-34, General Electric Company, Locomotive & Car Equipment Department, Erie, Pa., for illustrated brochures.

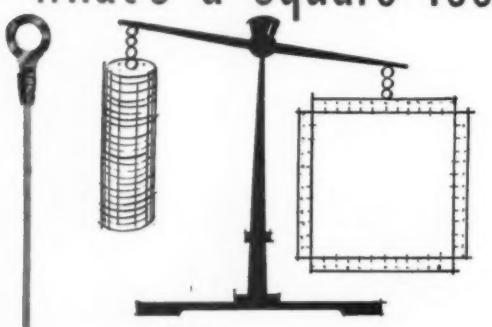
Progress Is Our Most Important Product

GENERAL ELECTRIC

TAKE TRANSIT OUT OF THE TRAFFIC JAM— give it room to move, and it will maintain faster schedules, give better service and save everyone time. What's more, you'll make your community safer by reducing the number of vehicles on city streets.

PUT IT ON A PRIVATE RIGHT-OF-WAY—in the long run it will save your taxpayers money when compared to the high cost of constructing additional highways that would be needed to move the same number of people in their private automobiles.

what's a square foot



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*Milwaukee, Wis.

Consult the yellow pages of your local telephone directory under AMERICAN PAMCOR, INC., for local telephone center number.

Palm Trees—A Tropical Moon—And Fire Chiefs

(Continued from page 113)

The Fire Prevention Bureau, under the leadership of Chief Fire Officer Jesse W. Davis, fire marshal, has broadened from an 11-man force to 16 men. The program, instituted under the direction of Fire Marshal Davis, has brought Miami up to first place in the state, third place in the nation for our population bracket, and eleventh in National standing within the last two years. Before then Miami was not even listed.

Miami has a new type Fire Alarm System, believed to be the first complete system of its kind. It is a telephone alarm system, maintained by the Telephone Company, but directly wired to our alarm office. These telephones are located at every intersection where a traffic control or caution light is located. Overhead is a sign directing attention to the box, and stating "Emergency Telephone—Fire and Police." To operate the alarm box, a person only has to open the door and lift the receiver. He is then directly connected to the Fire Alarm Operator. For police calls a button on the phone switches the call directly to the Police Complaint Desk. It is evident that with this type of system the Fire Alarm Operator can ascertain the type of fire involved and the address of the fire and assign either a company or full assignment. Of the 3,129 alarms of fire given in 1955, only 168 came by box.

The chiefs attending the Conference will find on the program such topics as The Integration of Police and Fire Departments; Planning for Major Disaster; Should Paid Firemen be Permitted Outside Jobs?; New Hazards Facing the Fire Service; What the Fire Chief Should Know About Training and Setting a Training Program for Firemen; Problems of Volunteer Fire Departments; Communications and Alarm Systems; A Pattern for Preparedness; the Use of Fog and Wet Water in Interior Fires; a series of talks by NATO representatives. The subjects were selected for the benefit of the Fire Chiefs and the cities they represent. An important subject has to do with "all work and no play." There is a Bar-b-Q scheduled at lovely Crandon Park; at the banquet the speaker will be the Honorable Leroy Collins, Governor of the State of Florida.

Traffic Signals That Talk

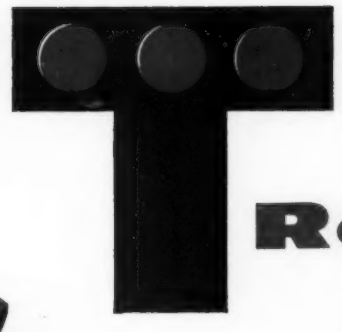
WITH radio units installed to coordinate the traffic light system, voice messages could be given to motorists and pedestrians by using amplifiers mounted at the intersection in the same cabinets containing radio tone control units.

The use of traffic radio channels to direct people in emergencies was discussed by Elmer W. Hassel, supervisor of terminal equipment engineering for the General Electric Communication Equipment Section at Syracuse, N. Y. The purpose is to avoid panic in the streets during an emergency.

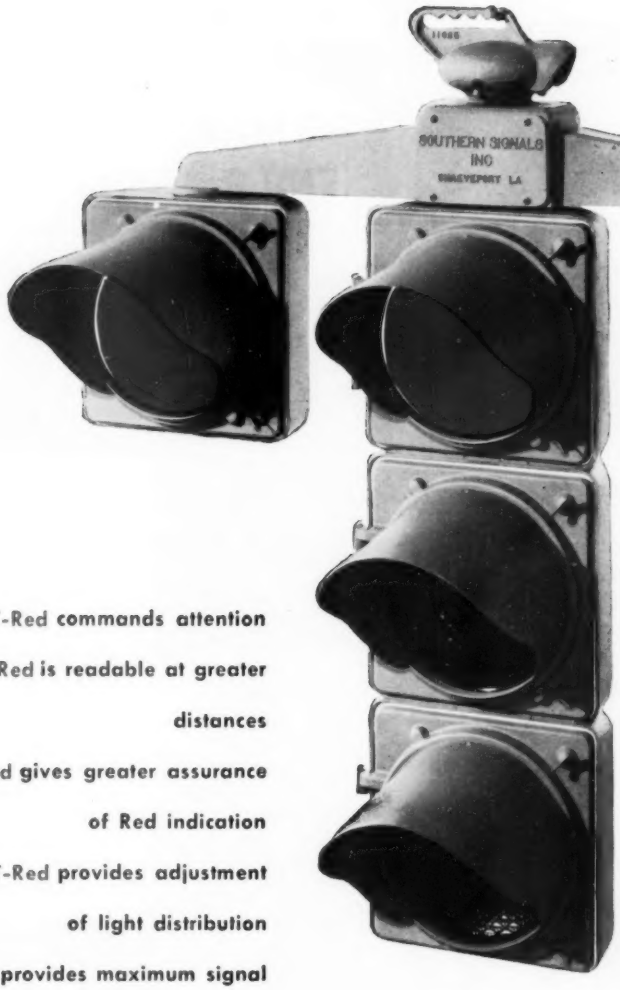
Radio-controlled traffic signals can turn all traffic lights within a city to a flashing combination of colors and this type of signal could become a symbol for emergencies where evacuation of a city would be desirable. Green lights could show the way to prearranged routes leading out of the city.

According to Mr. Hassel, the technology necessary to make such emergency systems work already exists in the type supplied by the General Electric Company for Chicago, Ill.; Evansville, Ind.; and Los Angeles, Calif.

AUTOFLOW Type T Signal



T Red



T-Red commands attention

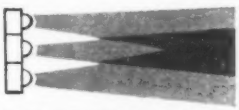
T-Red is readable at greater distances

T-Red gives greater assurance of Red indication

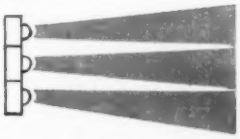
T-Red provides adjustment of light distribution

T-Red provides maximum signal efficiency for modern application

Limited light spread of conventional 8" or 12" signals.



"T" Signal adjusted for "Narrow Beam Red" for maximum punch at desired distance.



"T" Signal adjusted for "Wide Beam Red" for maximum coverage.

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Popular new standard white on red stop sign shipped from stock.

Cataphote represents a single source for you to obtain *all* your street and traffic marking items from special signs to nuts and bolts, including, of course, all the standard traffic signs. Both materials and fabrication, as well as design, comply with U. S. STANDARDS in every respect.

As a sign manufacturer, with over a quarter century of experience and service, Cataphote manufactures its own reflectorizing materials for reflective signs ... famous Cataflex Reflective Coating and Cataphote Reflector Buttons. With our own manufacture of these items, we are able to provide brilliant, long lasting, reflectorized signs of the highest quality.

Before you invest more in signs, investigate Cataphote quality, service and economy.

For Traffic Sign Shops CATAFLEX Reflective Coating Kits! Easiest-to-use, least expensive method of brilliant reflectorization. No special equipment or training needed. Silk screen, roller coat, spray or brush application. Send $25 for Trial Kit (100 sq. ft.) and free catalog TP3.

Good looking, long lasting Cataphote Street Name Signs are *guaranteed for three years.* Made of 18 gauge zinc-coated steel with embossed letters and borders, they have three coats of high gloss enamel baked on. Mounting brackets to fit your needs.

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Reflective Traffic Products:

- CATAFLEX SIGN KITS
- CATAPHOTE TRAFFIC SIGNS
- CATALINE REFLECTIVE STRIPING
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The City Tells Its Story

Municipal Public Relations

Edited by PAN DODD WHEELER

Executive Director, Government Public Relations Association

City Officials Seek Ways to Spark Grass-Roots Interest; Government PR Group Supplies the Answers!

OUR municipal council is interested in stimulating the people's concern over local government programs, writes the Honorable Eero Rydman, mayor, Helsinki, Finland, to the Government Public Relations Association. *Please send us information about what U. S. cities are doing along these lines.*

Long Beach has established a Public Relations Department, says the letter from the Long Beach, Calif., City Hall. *Can you supply materials about this type of work?*

Our town wants to dramatize the taking of the oaths of office by new city officials to help the officials and citizens recognize what a big responsibility these men are taking on, came the call from San Angelo, Texas. *Have you suggestions about how to do this?*

We need to tell folks what the town government is doing, commented the recorder at Ardmore, Tenn. *What's the best way to make a report?*

From big cities, small towns, and little villages throughout the country—and now the world—requests like these are directed to the Government Public Relations Association. They reflect a new awareness by city officials that public information, public interest, and sound city government are connected. And this means city officials are concerned about municipal public relations.

MPR's Reason for Being

Municipal public relations is an attempt to preserve democracy in the city, and to utilize public relations concepts and tools to make democracy work at the local level. That, in a nutshell, is what GPRA has been telling municipal officials in gatherings across the country for the past six years.

GPRA is an organization of men, women, and groups engaged in public relations work for governmental units or agencies at a federal, state, county, or municipal level. Its purpose, to quote the official statement, is "to strengthen democracy by making governmental operations more understandable; to stimulate official government public relations through organized leadership and action; to promote public and official understanding of the functions and principles of government public relations; to encourage recognition of government public relations as a profession, and to establish government public relations as a nonpolitical activity of government."

While GPRA members are concerned with public relations at all levels of government, activity is oriented toward municipal government. There are several reasons. First of all, city government is closest to people, and it can and should be the government level where citizen interest and action is most necessary and strong. Secondly, GPRA is an affiliate of the American Municipal Association and numbers among its 120 members several leagues of municipalities. Finally, GPRA is keenly concerned at the municipal level because it was founded by, and has grown because of the interest of, THE AMERICAN CITY editors.

Goal Is Realistic

Public relations in government has an aim as realistic as it is idealistic. Administrative processes in the city—the large as well as the small one—depend on elementary citizen responses. These include: selecting officials, expressing preferences in referenda, paying fees and taxes and utility charges, obeying regulations, and supporting law enforcement. Only people with information and interest make these re-

GPRA's director, Mrs. Pan Dodd Wheeler, presents a first prize to Mayor William C. Keaton for his Hohenwald, Tenn., town report.

sponses. When people do not respond, administration bogs down. The city suffers.

Government of, by, and for the people contemplates prerequisites. These are: *adequate understanding of how city government functions; current information* about city government operations; *channels through which the citizen can affect city government* policy and action; and *channels through which the citizen can be reached* by the city government. The aim of MPR is to provide these prerequisites.

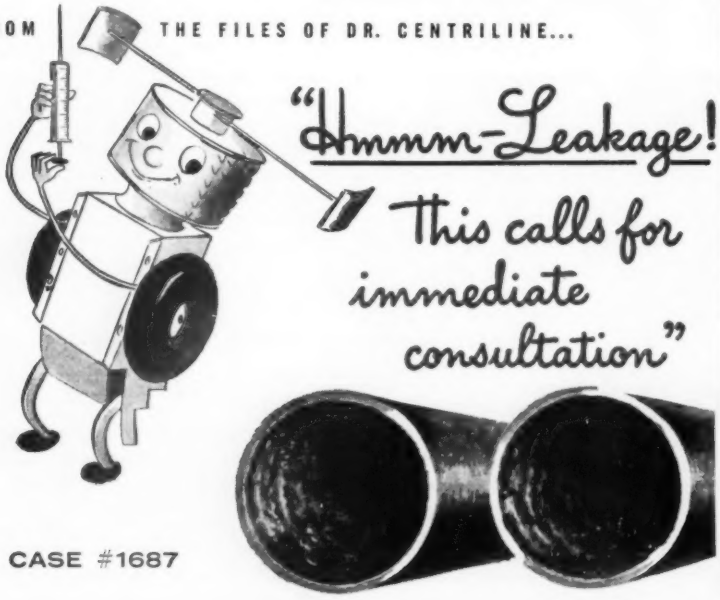
The MPR pages, "The City Tells Its Story,"* are an important medium for reporting and evaluating public relations action in many different departments of city government. For example, selected reprints of these pages were provided to the Mayor of Helsinki in response to his letter mentioned earlier. The City of Helsinki has applied for membership in GPRA and becomes the first European city to do so.

While membership is by invitation only, every community has some official who is eligible and who, on behalf of his city or village, may apply for membership. The man or woman with the public relations or public information function in the city government is your city's eligible GPRA candidate. The present membership includes mayors, city managers, administrative assistants, city clerks or recorders, councilmen and aldermen, commissioners, public relations officers, department heads, and chairmen of citizen commissions appointed by the city government and charged with the PR function.

Membership inquiries may be addressed to the Government Public Relations Association, care of this magazine or to GPRA, Box 8260, Knoxville, Tenn.

* Appearing monthly in THE AMERICAN CITY.

FROM THE FILES OF DR. CENTRILINE...



CASE #1687

PATIENT: 5 miles of 62" and 36" steel water mains in St. Louis, Missouri.

SYMPTOMS: Leakage repair costs on the increase from 1936 to 1947.

DIAGNOSIS: External corrosion causing pitting through the pipe wall.

TREATMENT: In 1947, after consultation with Centriline, pipelines were cleaned and cement-lined in place with a smooth, dense mortar lining by the Centriline Process.

RESULTS: The dense cement lining stopped leakage, eliminating high maintenance costs. Savings represented 13% return on the cost of cleaning and lining.*

This lining has paid for itself in only 8 years. Not only was the leakage stopped but the carrying capacity was increased. If your problem is leakage in steel pipe . . . or capacity reducing tuberculation in steel or cast iron water mains, consider the advantages of cement lining in place.

*From a paper written by Mr. John B. Dean, Division Engineer, Water Div., St. Louis, Mo.

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Shoppers' Plaza for Minneapolis

FOR a million dollars a block the businessmen of Minneapolis, Minn., are considering building an elevated shoppers plaza extending four blocks along Nicollet Avenue. The area would be enclosed, heated, and air-conditioned, with entrances to buildings on each

side of the avenue at second-floor level. All city buses would be routed through Nicollet Avenue, making this a sheltered mass transportation loading and unloading concourse. Architects are Larson and McLaren, Minneapolis.

The principal sponsor, Leslie C. Park, president of Baker Properties, Inc., Minneapolis, writes: "As to how soon it would be possible to sell the community and the property owners in the project, we have not been able to find very many serious bugs in it and we are hoping that we can create sufficient interest so that it may . . . become a reality."

A constant reminder every 24 feet

As a constant reminder to the motorist that safe driving is imperative, this slogan plate is included as standard equipment on every DUNCAN-MILLER Model "60" Meter.

Initiated over two years ago, thousands upon thousands of these safety slogans occupy conspicuous street and parking lot locations.

DUNCAN-MILLER is proud to be doing its share in the interest of public safety.

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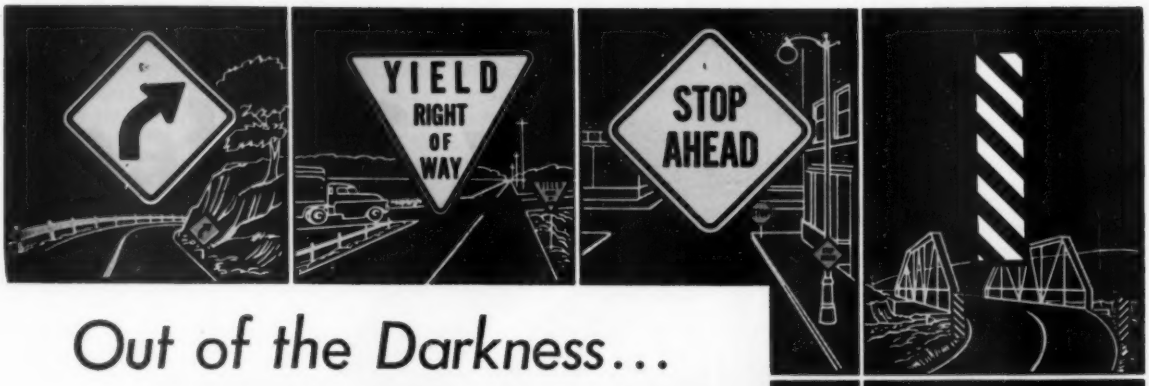

Out of the Darkness...

STRONG · BRIGHT · CLEAR

GROTELITE *REFLECTIVE SHEETING!*

Grotelite SS Sheds Water Like A Duck's Back!

Before You Place Another Order For Reflective Material, Shouldn't You Examine These Facts on Grotelite SS!

1. Outstanding Target Value!
2. Rugged, Smooth Surface!
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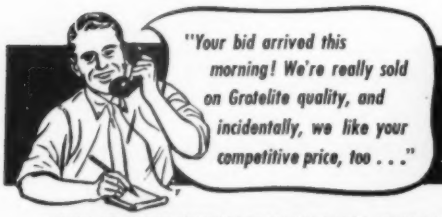
5. Extra Years of Reflective Service!

Through the dangers of the night, in rain, snow or sleet, Grotelite Reflectorized Signs shine out with long-range brilliance and clearness. Grotelite SS is entirely waterproof and weather-proof . . . self-cleans in the rain. It withstands extremes of temperature and humidity, remains in excellent condition after years of service. Whether headlights are bright or dimmed, this improved reflective sheeting insures maximum sign-to-car warning . . . in *any* weather!

GROTELITE GIVES THE MOTORIST TIME TO BE SAFE!

Today's highspeed traffic requires long-range reflectivity. It's too late to be safe, after the car reaches the sign. Grotelite provides maximum warning where it counts . . . at the greatest distance from the point of danger!

Send Today for Catalog No. 754-T . . . and for Complete Facts!


"Your bid arrived this morning! We're really sold on Grotelite quality, and incidentally, we like your competitive price, too . . ."

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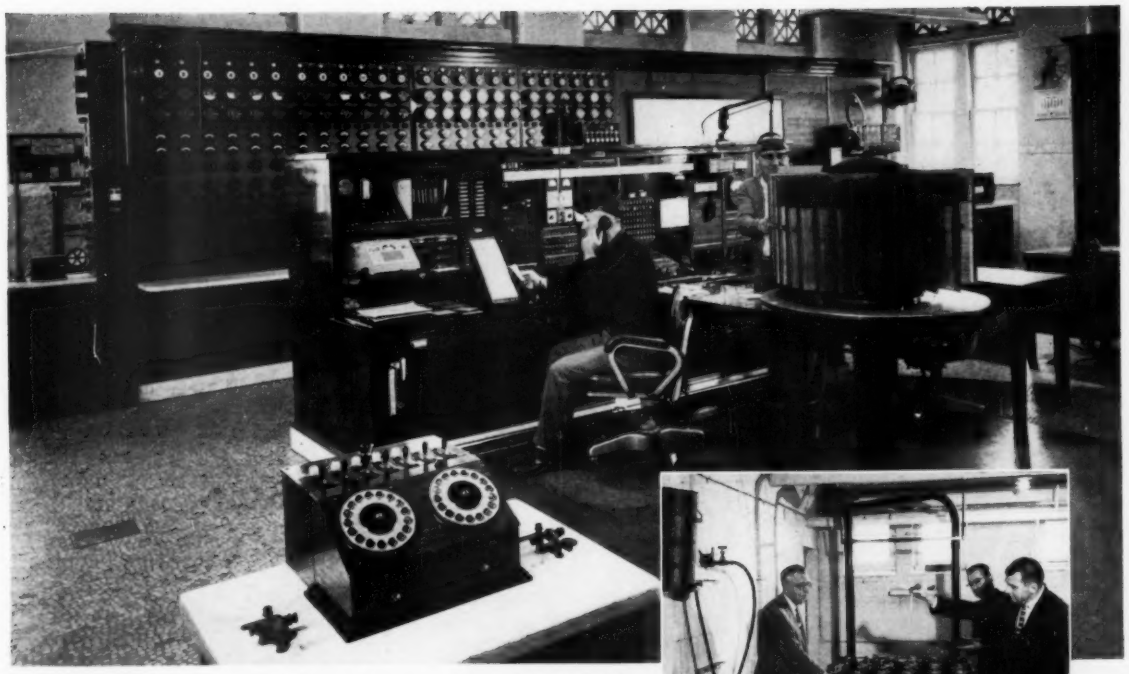


A telephoned fire alarm is received by George Gordon and L. C. Smith, fire alarm operators at the fire alarm headquarters, Oakland. Mr. Smith checks the card index to ascertain expedient company, while Mr. Gordon throws the switch to start the tape recorder, loud speaker to all stations, and time recorder simultaneously. With all companies alerted, a particular company is notified by direct-wire telephone. The street alarm box number is transmitted by telegraph and 2-way radio system to reach any battalion chief of company away from quarters. Power for this two-way operation is supplied by the Edison batteries shown at the right.

30-Year-Old Batteries Power Oakland's Fire Alarm

By H. A. REICHHOLD
Supervisor of Electrical Construction & Maintenance
Oakland Electrical Department

IN 1926, the City of Oakland, Calif., changed its whole fire alarm system from one battery for each line to one battery for all lines, and the Edison Nickel-Iron-Alkaline was selected for this replacement on the basis of its long life and efficiency. That was 30 years ago and the same batteries are still doing the job.

This is of vital importance, as our entire fire alarm system is dependent on these batteries. We have never lost an alarm due to battery failure during those 30 years.

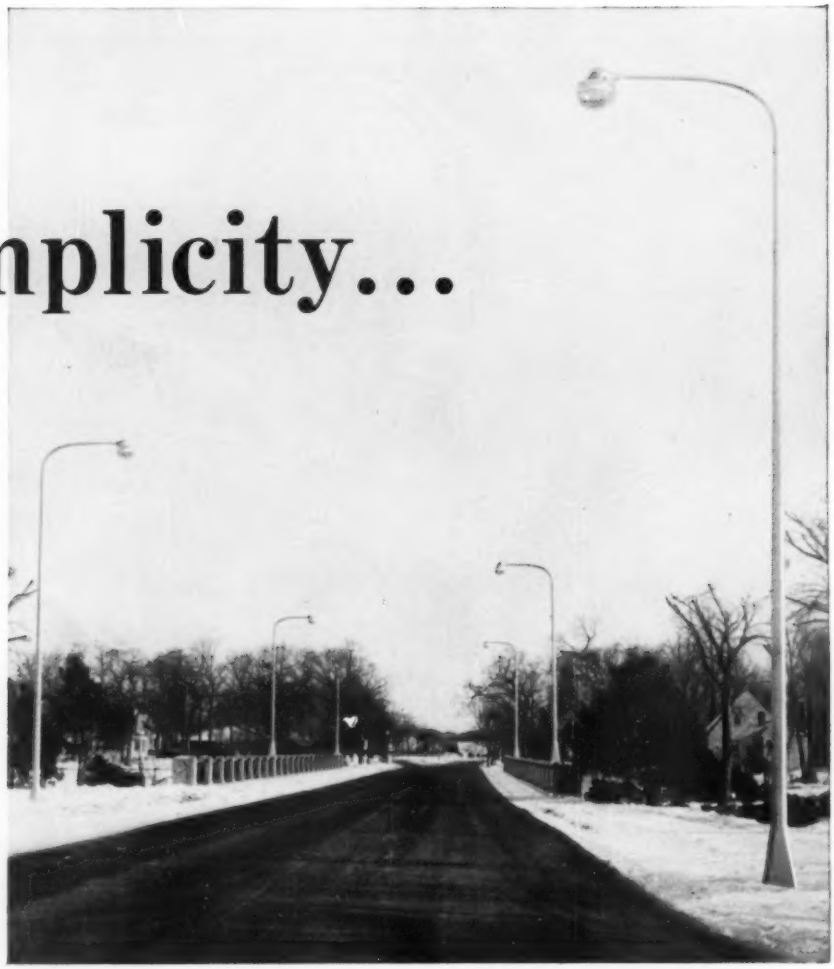
The two 69-cell batteries of 450-ampere-hour capacity are located in a fireproof enclosure in the basement of central fire alarm headquarters. They operate on a trickle charge of 13 amperes and the two are alternated weekly. They are "flushed" (given distilled water) at intervals of three months.

The active materials which compose the battery are enclosed in perforated steel tubes and pockets so that they cannot be dislodged by the gassing which normally occurs while batteries are being charged. Therefore, these materials cannot accumulate in the bottom of the cell and eventually short-circuit the plates. This is one of the reasons these batteries are not subject to sudden failure. The alkaline solution used eliminates corrosive acid fumes and allows steel cell construction. This steel construction throughout results in great mechanical strength without excessive weight. Unlike all other batteries, an accidental charge in the reverse direction will not injure an Edison battery.

The Oakland Fire Alarm System has 1,300 street fire alarm boxes on 72 circuits. The boxes have a clockwork mechanism and are spring operated on a succession basis; i.e., should alarms be turned in from two boxes simultaneously, one signal would hold until the other had come through on the tape register at the Central Station so the two would not run together and blur identification. When an alarm comes in, fire alarm operators telegraph the box number to all fire houses.

A recent inspection of this entire installation in Oakland disclosed that the gravities were satisfactory in all of the batteries, and that after 30 years of perfect performance these batteries still have indefinite life expectancy.

Simplicity...



Classic beauty with super-strength! No other lighting standard matches the clean, modern design of the "ELITE" lighting standard.

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WHEN IT COMES to simplicity, the Millerbernd "ELITE" lighting standard has no equal.

It has fewer parts than any other standard, a feature which pays big dividends . . . *immediately* in reduced installation costs . . . and *through the years to come* in less maintenance expense.

Styled simply . . . to *stay* in style . . . the "ELITE'S" modern, bright, new look is recognized and remembered by citizens and shoppers. It is the something extra that makes your project outstanding! And, of course, Millerbernd standards are cold-roll-formed of *extra-strength* steel.

Have you investigated this most beautiful of all lighting standards? Our Booklet OTA gives engineering data and shows typical installations.

Write today! Millerbernd Manufacturing Co., Winsted, Minn.

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*Elite**

LIGHTING STANDARDS

Crisis in Urban Civil Defense

Bipartisan congressional committee bares serious deficiencies in nation's civil defense and urges sweeping reorientation of entire effort

CITY officials who have long felt restive about the weak status of civil defense can now point to conclusive evidence compiled by a congressional committee that the nation is woefully unprepared to protect its urban populations against nuclear attacks.

In a 103-page analysis backed up by more than 3,000 pages of printed testimony, a special subcommittee of the House of Representatives has painstakingly prepared the first clear and unvarnished analysis of the nation's civil defense preparedness.

Principal target of the committee's blasts is the Federal Civil Defense Administration, which is accused of failing to understand fully the very requirements of an effective national civil defense program; failing to develop a basic national plan for protection of city populations; and of promoting shortsighted and weak defensive techniques such as evacuation and backyard family shelters that are cheap substitutes for an effective civil defense.

Salvoes are also fired at the Atomic Energy Commission, which is accused of displaying "a kind of easy optimism about nuclear explosion effects." It further charges the AEC with confusing the public about the danger of radioactive fallout despite the fact that Naval authorities are now convinced that fallout, rather than blast or heat, must be considered as the major antipersonnel effect of nuclear explosions.

Finally, striking at the highest echelon of the federal government, the report condemns the very philosophy upon which the nation's civil defense program is now based. This is the concept that the protection of urban populations is primarily the responsibility of state and local governments and only secondarily the concern of the federal.

The group that produced the monumental report is the Military Operations Subcommittee of the House Committee on Government Operations. Chaired by Representative Chet Holifield of California, the eight-man body spent six months hearing and compiling testimony from 211 witnesses throughout the country. An additional six months of staff preparation preceded the committee's hearing which began in January of this year.

Under the House Committee's proposed approach, the nation's ability to protect its urban populations would be considered as strategically important to national survival as our ability to launch long-range bombers carrying the terrible nuclear weapons. Proceeding from this philosophy, the committee recommends that new federal legislation be passed that would require the federal government to assume "the basic responsibility and thus the burden of the heavily stepped-up costs that would be involved in an effective CD. . . . States and local units of government would be allocated an important supporting role."

The far-reaching character of these recommendations forms the background for the committee's further proposal that the national government's civil defense responsibilities be administered through a completely new cabinet-rank federal Department of Civil Defense. The new department would be a permanent one, for in the committee's eyes, the unleashing of atomic power has presented mankind with the possibility of nuclear war for all time to come.

The committee proposes that evacuation be severely downgraded as a protective measure and a strong shelter policy be made the key defense for urban populations against the blast, heat, and radiation effects of nuclear weapons. It proposes that the new Department of Civil Defense "be authorized to finance the construction of shelters in all target areas with the cooperation of state and local authorities."

The formulation of an effective master plan for "nationwide civil defense" is called for as one of the first duties of the new department.

Evacuation Theory Challenged

Of greatest immediate importance to city officials is the committee's recommendation that the current evacuation policy be virtually scrapped and replaced by a strong shelter program. The tightly reasoned factors behind the committee's condemnation of the evacuation policy are:

1. ***Fallout:*** The very serious and lingering effects of radioactive fallout pose an immediate problem to an evacuation policy that seeks to replace populations beyond the reach of the effects of the bomb. Testimony before the committee showed that a surface burst on Washington, D. C., could produce a fallout that would be lethal to every person in the Philadelphia area. Under such circumstances an evacuation of Philadelphia's population into any part of its immediate hinterland would amount to a virtual death march. Similarly, a strategically placed series of bomb explosions could pose a contamination situation for whole groups in heavily populated target areas, thus making the evacuation problem one of moving millions of people hundreds, rather than tens, of miles. With a warning time of three hours or less, the question of moving large numbers of people 250 miles or more ceased beyond the range of practicality to the committee.

2. ***Warning time:*** The prospect of

an ever-diminishing length of warning makes the committee extremely suspicious of evacuation as a long-range policy. At present, existing radar networks give warning times of approximately one hour, assuming bomber attacks via the North Pole. It is expected that this will be extended to about three hours with the completion of the Distant Early Warning line across northern Canada and Alaska. (However, even this will have its Achilles heel. General Curtis LeMay has pointed out to Congress that by the time the DEW line is completed, Russian bombers with their ranges extended by refueling in the air "will be able to . . . go clear around the warning line and come in from the southeast and hit the coast with very little warning—with just what the coast-wide radars can see.")

But the clincher to the warning time problem in the committee's view is the prospect of the intercontinental ballistics missile. With the perfection of this means of delivering nuclear warhead, minutes rather than hours will be available to populations seeking protection. Under such a circumstance, the committee believes evacuation will be totally impractical.

3. ***Bombing accuracy:*** The theory that protection can be gained by fleeing key targets on the assumption that bombs will explode at points of maximum vulnerability is a faulty one in the committee's eye. Bombing inaccuracies are bound to occur and the inaccuracies are likely to increase in dimension with such bomb delivery systems as the ICBM. Thus the committee believes that the evacuation idea is seriously undermined if the countryside as well as the city may be the target.

Because the committee sees these and other soft spots in the evacuation idea, it urges a switch to a strong shelter policy.

By severely reducing the area of casualty production, shelter, in the committee's view, "makes the weapon look smaller." Walmer E. Strope, director of weapons evaluation of the Naval Radiological Defense Laboratory, in testimony before the committee explained that a 10-megaton weapon could produce a damage radius of 15 miles, or an area of some 700 square miles, and contaminate some 7,000 square miles by fallout. Properly constructed shelters, however, could reduce the radius of blast and heat damage to an order of 1 to 2 miles or the area to 3 to 12 square miles. In percentage terms, the area of immediate effects would be reduced to 1%. This, the committee says, constitutes a drastic reduction of the blast, burn, and radiation effect of a high yield weapon, and in this way the shelters squeeze a 20-megaton weapon down to 20-kiloton size.

Another advantage of a shelter is its small dependence on specified warning times, an all important factor as the day of the ICBM approaches. Finally, the committee foresees that a network of well-built and adequately equipped shelters can become an effective base of operations from which actions can be directed to restore stricken urban areas to partial if not complete usefulness.

Survival Plans

Another committee recommendation will come as a surprise to city officials, especially to those in large metropolitan areas. This is the proposal that the 25 survival plan studies being pursued in such target areas as New York City, Washington, Baltimore, Boston, Philadelphia, Detroit, San Francisco, Los Angeles,

(Continued on page 185)

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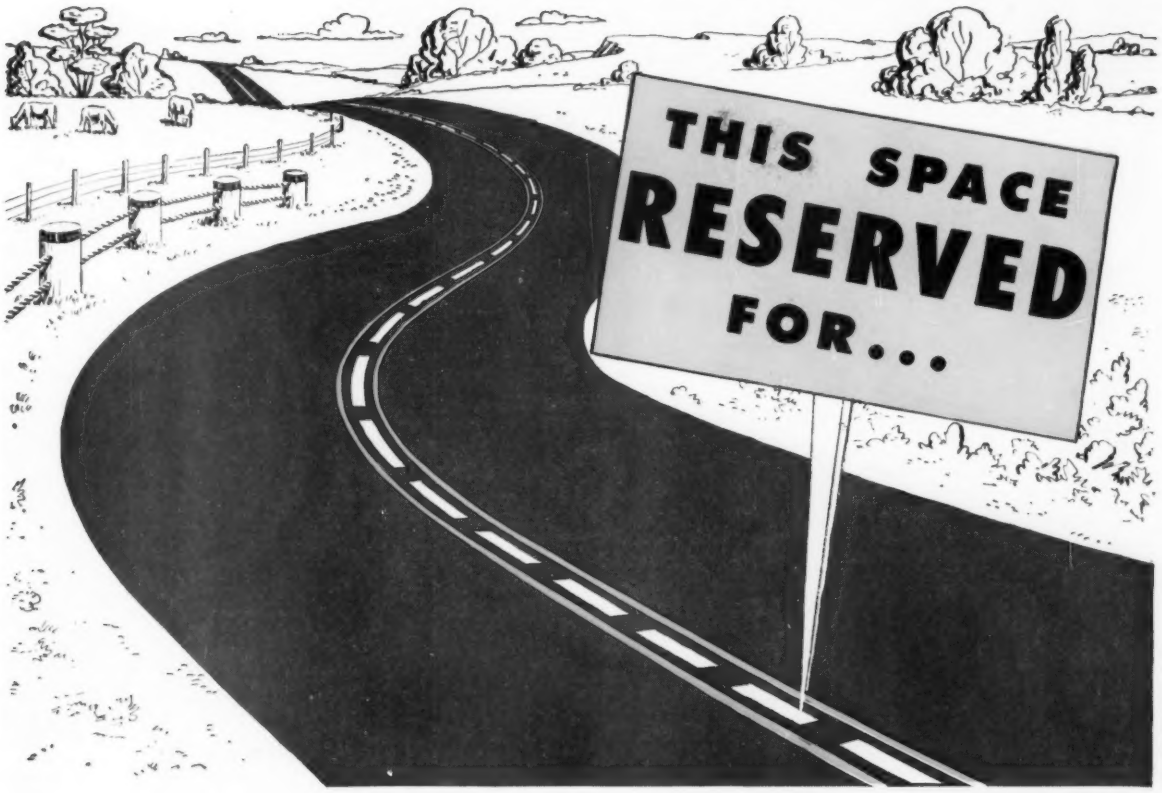

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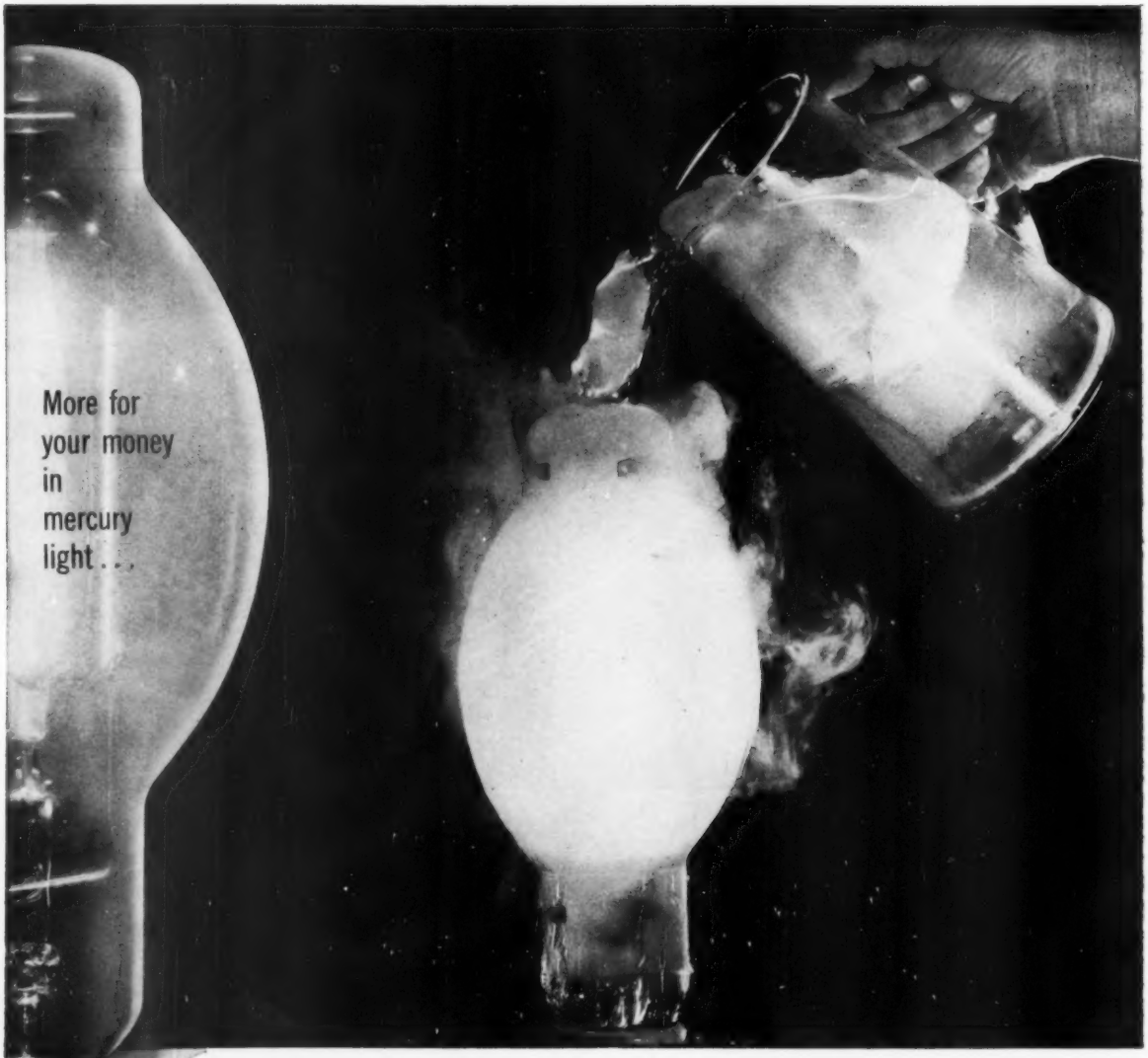

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Why Some Stopped Fluoridation

Syracuse, N. Y., Bureau of Municipal Research looks into the background and reasoning that caused a few cities to cancel their fluoridation programs

Syracuse runs down the rumor that fluoridated water has a taste. One container has fluoridated water; the other container holds nonfluoridated water. Jay-Cee testers could distinguish no difference in taste between fluoridated and nonfluoridated water.

ACROSS the nation, roughly 1,100 municipalities now add fluorides to their public drinking water to help keep the teeth of their young people from being pock-marked with decay. However, also across the nation, reports have trickled back that 42 cities tried the fluorides for a while and then stopped. Syracuse's Mayor Donald H. Meade and the Common Council wanted to know why, and asked the city's Bureau of Municipal Research to find out.

To get the full, impartial story, the Bureau sent questionnaires to the city editor of each local newspaper, to the health officer, to various local officials, and to the president of the local dental societies. One or more officials in 29 of the surveyed communities replied. Of these, 8 were newspaper editors; 16 were health officers; one was the president of a dental society; and 18 were other local officials. The 29 municipalities are in 18 states with populations ranging from 1,402 (Prarie du Sac, Wis.) to 434,927 (San Diego, Calif.).

The survey first showed only 25 repealers out of the 29 who responded. Four municipalities, reported as repealing their fluoridation measure, actually had not.

The reports told of four others who had hopped onto the fluoridation band wagon, off, and then on again. Of these, two replied to the questionnaire: Assumption, Ill., and Naples, Fla. Both said that strong public demand brought about the reinstatement.

Constitutional Rights Not Violated

The San Diego fluoridation controversy produced an interesting court decision. Opponents charged that the fluoridation program violated constitutional rights, particularly to freedom of religious belief, by forcing them to take part in a medication program against their will. The court held that:

> **. . . no constitutional rights of any citizens of San Diego to freedom of religious belief would be invaded or violated by the adoption of the proposed program**

The court further reasoned that:

> **. . . the plaintiff has not proven that the program here under attack has or will invade his constitutional rights, or that the carrying out of the program mentioned will in anywise injure him. On the other hand, the facts in evidence and the authorities cited herein demonstrate convincingly that the adoption of the fluoridation program here involved is a valid exercise of the police power of the city.**

The decision was upheld by the Appellate Court. Appeals to the Supreme Court of California and to the United States Supreme Court were turned down.

In nearly every case, respondents pointed to a small, organized vocal public minority. Proponents believed mistakenly that the public would accept public health authority for the measure and often became apathetic.

One Texas official wrote that the fluoridation decision was reversed because proponents failed to continue public education following the onset of the program. Instead, they sat back to glory in their accomplishments.

Fear Psychosis

A Massachusetts respondent found that a fear psychosis was a vehicle in the fluoridation issue. The municipality under discussion was Williamstown, Mass.

Threats of political reprisals also occurred in the study. One respondent for a western city reported that a rump opposition party arose that not only blocked fluoridation, but also resisted school improvements, de-

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feated the formation of a hospital district, and smeared individuals in the city administration.

In another small midwestern town, opposition circulated a petition against the program signed by a large majority of the voters. The council then stopped the fluoridation, and the people showed their appreciation by voting the administration out of office at the very next election.

Doubt

Opposition often dwelt on the inability of the medical and dental profession to speak with complete positiveness. Creating an atmosphere of doubt, as one Wisconsin respondent stated, was enough to raise serious questions in the minds of the public. A western respondent explained that the average voter is not well enough educated in fluoride matters and so quickly becomes confused. Another Wisconsin respondent mentioned complained that opponents mentioned "rat poison," the Fifth and Fourteenth Amendments to the Constitution, and religious rights, so that the public did not know whether it was voting on fluoridation, chlorination, or colored water sometimes caused by flushing the water mains.

Respondents from several cities stated that opposition stemmed from older persons who feared that it would injure their health.

One New England respondent stated that the taste of the water in that city had become so bad that the people automatically vote down anything that has to do with water supply. He stated that the water supply has a taste of "moose tracks soaked in sawdust."

A respondent from a north-central city listed the chief opponent as a sincere, highly religious individual. It did not seem incongruous to him that he should lead the antifluoridation campaign although he lives outside the city, and that the water from the well that supplies his own community contains 2 ppm (parts per million) of fluoride.

In one eastern city, the local publisher spearheaded opposition. He became offended and aroused when a physician intimated that he lacked the capacity to understand the scientific factors involved.

In at least four of the cities polled, the respondents indicated strongly that public interest was under way to reinstate fluoridation.

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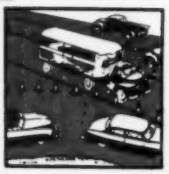

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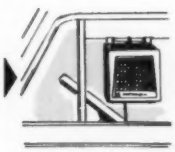

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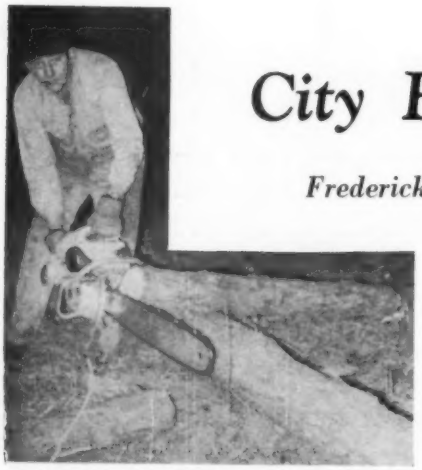

The McGulloch chain saw made it possible for inexperienced personnel to do the cutting neatly, quickly, and efficiently.

City Forest Earns a Profit

Fredericksburg, Va., gets multiple dividends from trees planted 24 years ago

By R. L. Marler
Virginia Division of Forestry
Charlottesville, Va.

DURING the depression years of 1932 and 1933, Mr. L. J. Houston,* City Manager of Fredricksburg at that time, arranged to plant 75,000 loblolly pines on 72 acres of worn-out city-owned farmland. City labor did the planting work, just as city labor in later years did the harvesting. This program undoubtedly took foresight and courage during those lean, hard years, and few today will doubt the wisdom of Mr. Houston's action.

Economics of Good Forestry

The pines have survived and grown well and now are in the process of being thinned out for pulpwood. In cooperation with the City of Fredricksburg, the Virginia Division of Forestry helped measure the average volume of pulpwood being cut per acre, and the volume of wood left uncut for future growth. Figures indicate that, from the time of cutting (winter 1955-56), the pines since had grown to approximately 41 cords of pulpwood per acre, and that more than one-third of the pines was available for harvesting. This pulpwood is grossing the city more than $13 per standard cord, or approximately $175 per acre. About 26 cords of pulpwood per acre remain on the land for future growth. Many of these pines left for future growth are large enough to be cut for sawtimber now, but since it would not be good forestry nor good economics to cut them now they will be allowed to grow a few years and develop into sawtimber trees of much larger size.

Future management of the city's planted pines offers many possibilities. The largest financial return lies in making periodic cuts or thinnings before making a final harvest cut. As the pines grow, they will require more growing space and under proper forest management this space is provided for by thinning out the stand. Nature's system of thinning results in natural mortality in order to provide this growing room. Nature removes trees *after* growth slackens, not before. This is wasteful. So, by making periodic thinnings, the city will not only be salvaging wood, which will otherwise die and be wasted, but also will be helping to maintain a satisfactory growth rate in the stand. The Virginia Division of Forestry estimates that in approximately seven years another thinning cut can and should be made in the City of Fredericksburg's pine stand. This thinning will produce sawtimber which will return an even larger income to the City of Fredericksburg, Va.

Careful thinning encourages the growth of other trees in the timber stand.

Off-Season Labor

The planted pines have certainly proved to be a good investment, requiring little or no care since planting. In addition, the pine stands afford an outlet for city labor during winter months. The men do a good job of thinning the stand and producing the pulpwood, particularly since many of them had never done this type of work before. However, any crew having some experience in handling a saw and axe and given preliminary supervision should be able to thin the timber. The crew uses a McCulloch Model 47 chain saw to do the cutting.

Recreational Benefits

Recreational aspects of the pine plantation are not being overlooked by the city. Plans provide picnic tables on the area and other recreational facilities. While it is hard to place a dollar value on the esthetic or recreational value of forests, this purpose alone may give greater justification for tree planting than the economic return.

City Manager Freeman F. Funk is following the practice of his predecessor by planting 16,000 more loblolly pines this year on city-owned land.

* Mr. L. J. Houston now is City Manager Emeritus of Fredericksburg and has the distinction of holding the nation's longest continuous record of service as a city manager.

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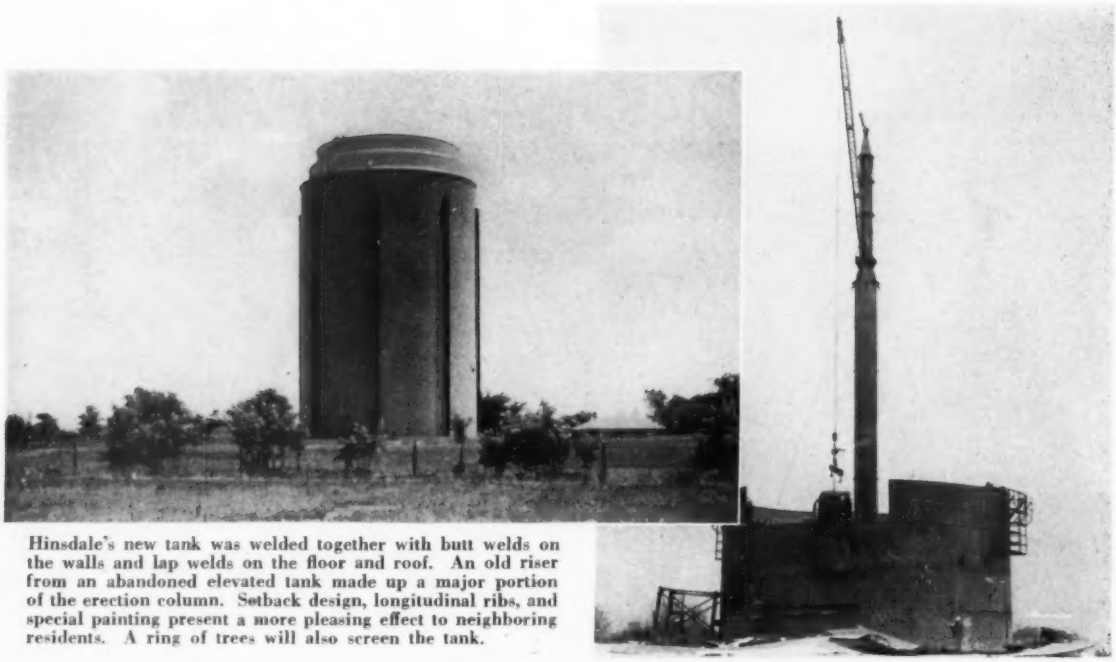

Hinsdale's new tank was welded together with butt welds on the walls and lap welds on the floor and roof. An old riser from an abandoned elevated tank made up a major portion of the erection column. Setback design, longitudinal ribs, and special painting present a more pleasing effect to neighboring residents. A ring of trees will also screen the tank.

How Hinsdale, Ill.,

Put Style into a Water Standpipe

By THEODORE M. WARDWELL
Village Manager
Hinsdale, Ill.

THE problems involved in erecting an elevated storage tank or large standpipe in a residential community are not all structural. In our case the selection of a site caused the headache, one that finally required a court settlement even though all concerned tried to avoid the issue by giving special consideration to the esthetic value of the structure.

Hinsdale is a strictly residential suburban community located approximately 20 miles southwest of the Chicago Loop. Rapid growth (from 8,676 persons in 1950 to 11,324 in July of 1955) increased use of water per capita, and a hot and dry summer forced us to impose sprinkling restrictions for the first time, in 1953. At that time the Utilities Commission and the Village Board called in the firm of Alvord, Burdick & Howson to make a survey of our water system and recommend necessary additions. The firm's interest in the project was more than professional, for Louis R. Howson, the only surviving partner of the three original members, is a long-time resident of Hinsdale, having served both as a member of the Utilities Commission and the Village Board in past years.

System Enlarged

The report, submitted in October 1955, recommended the drilling of two more wells to supplement the three then in use, an enlargement of the water softening plant from 3 mgd to 5 mgd (million gallons daily), the installation of a 2,100 gpm high-service pump, and the provision of elevated storage of which we had none. The distribution system had been strengthened in 1949, so required little attention at this time.

This article is primarily concerned with our elevated storage, for we believe it presents some unusual features.

The engineering report originally recommended either an elevated tank or standpipe. Subsequent developments indicated to Mr. Howson, that a 2-million-gallon standpipe was the best type of storage for our situation as we had enough difference in elevation within the community to make the lower portion of a standpipe available for emergency use. Even with the tank practically empty, we could still maintain about 20 pounds of pressure in the business district. It was further pointed out that an elevated tank of 500,000 gallons capacity, the minimum considered, would cost about the same as the 2-million-gallon standpipe.

Our next problem was to select a site. Several areas in the southwest portion of the village or adjacent thereto satisfied elevation requirements and were reasonably close to main feeder lines.

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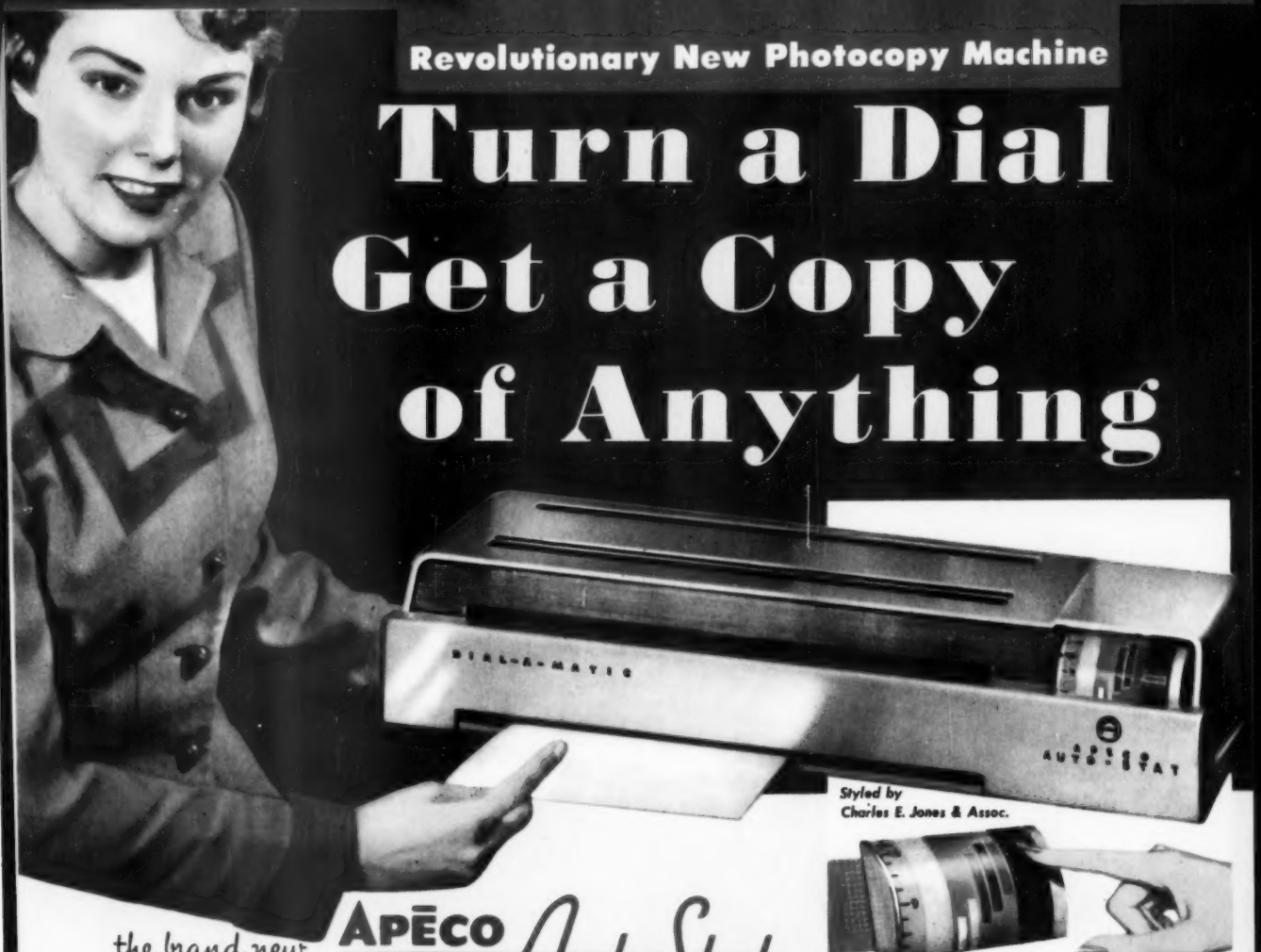

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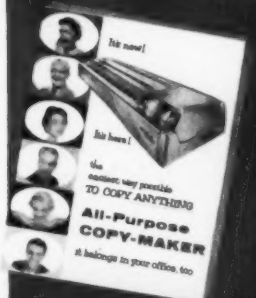

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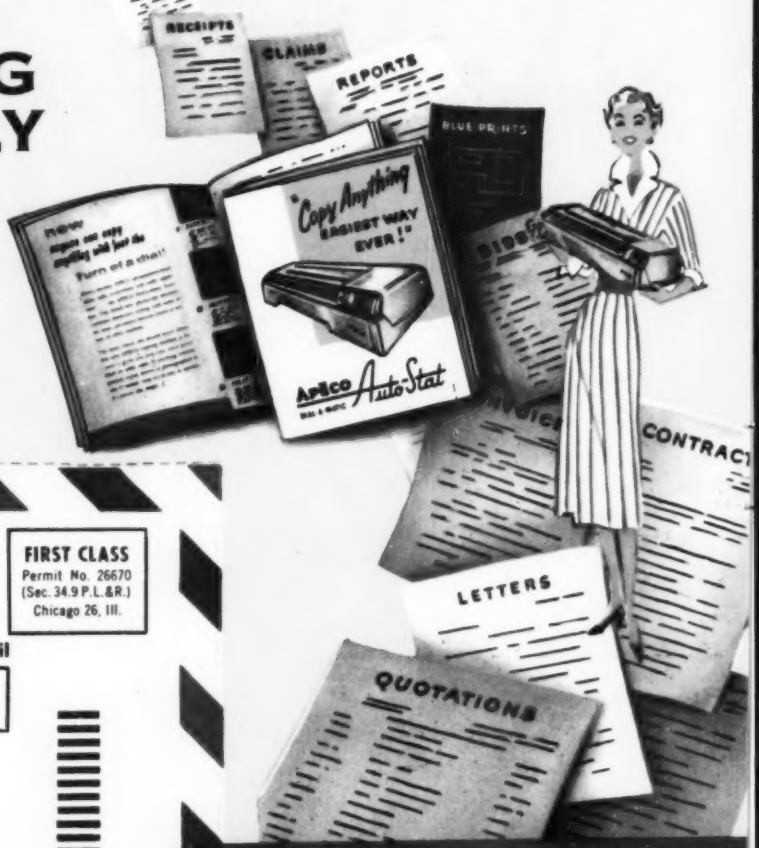

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village and obtained an option on the needed land. This site was fairly close to existing and potential residents, about 200 feet to the nearest home at the time. As soon as our plans became known, residents in the area swamped the Village Board with complaints. The structure was to be 60 feet in diameter and 100 feet high, so the complainants argued that the tank would obstruct the view, look bad, cast unwanted shadows, and depreciate real estate values. Although many of these arguments were unsound, the Board agreed to look into other locations.

We found another suitable area that abutted the village, but the site itself was actually outside the corporate limits. It joined the high school grounds on the north and east and residential lots on the south and west. We felt this was the best location, so purchased a tract of land 150 feet by 200 feet for $5,000.

Anticipating some objections from the adjoining property owners, the Village Board decided at this time to see what could be done to make the structure as pleasing in appearance as possible. They called in the Village Plan Commission which, in turn, submitted the matter to its architectural committee, chairmaned by Philip West, a local architect.

The original plans called for a plain cylinder with an ellipsoidal roof. The Plan Commission came up with a design involving the use of two set backs and a dome roof. In addition, they added eight vertical ribs made up of 16-inch I-beams with one flange removed. This would relieve the severity of the straight walls. Finally, the painting scheme was given special consideration. The walls are pea green, the ribs a forest green for contrast, and the set backs and roof a cloud grey to blend into the sky. Landscaping was given consideration in the plan. The site will be enclosed by an 8-foot chain-link fence and a honeysuckle hedge. To complete the picture, we will plant 12 Moline Elms at least 40 feet in height to act as a screen.

In spite of these changes, which cost us about $16,000 extra for change in design as well as landscaping, the residents were not satisfied. Two nearby property owners living outside the village plus two village residents obtained an injunction to stop construction and issuance of bonds. Trial was held in Du Page County Circuit Court in May of 1955, and after the plaintiffs presented all the evidence, the judge ruled in favor of the village on the motion of our attorney to dismiss without even hearing the village evidence. This removed the last legal obstacle and, as no appeal was taken, we started construction.

R. L. O'Neill of Chicago erected the ring-and-slab-type foundation for $16,588.70 and the Chicago Bridge & Iron Company furnished and erected the tank at a cost of $92,200, including $8,100 extra for the change in design. Another $8,000 will be spent for landscaping and fencing.

The tank itself is 60 feet in diameter, reduced to 54.7 feet at elevation 87.0 and to 49.4 feet at elevation 93.6. The top of the second set back where the roof joins is at elevation 100.0. The wall sheets were rolled to the proper curve, are about 8 feet by 20 feet in size, and vary in thickness from 1.25 inches at the bottom to 0.25 inches at the top. Portions of the grading are completed, but trees cannot be planted until this winter when they can be dug out with a frozen dirt ball. The structure is part of our total expansion program designed to supply an ultimate population of 18,000. A $525,000 bond issue financed it.

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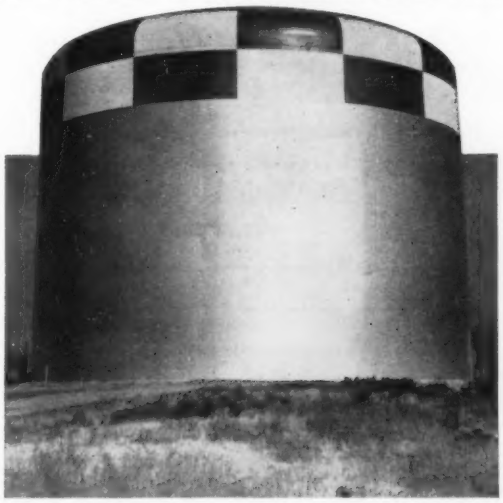

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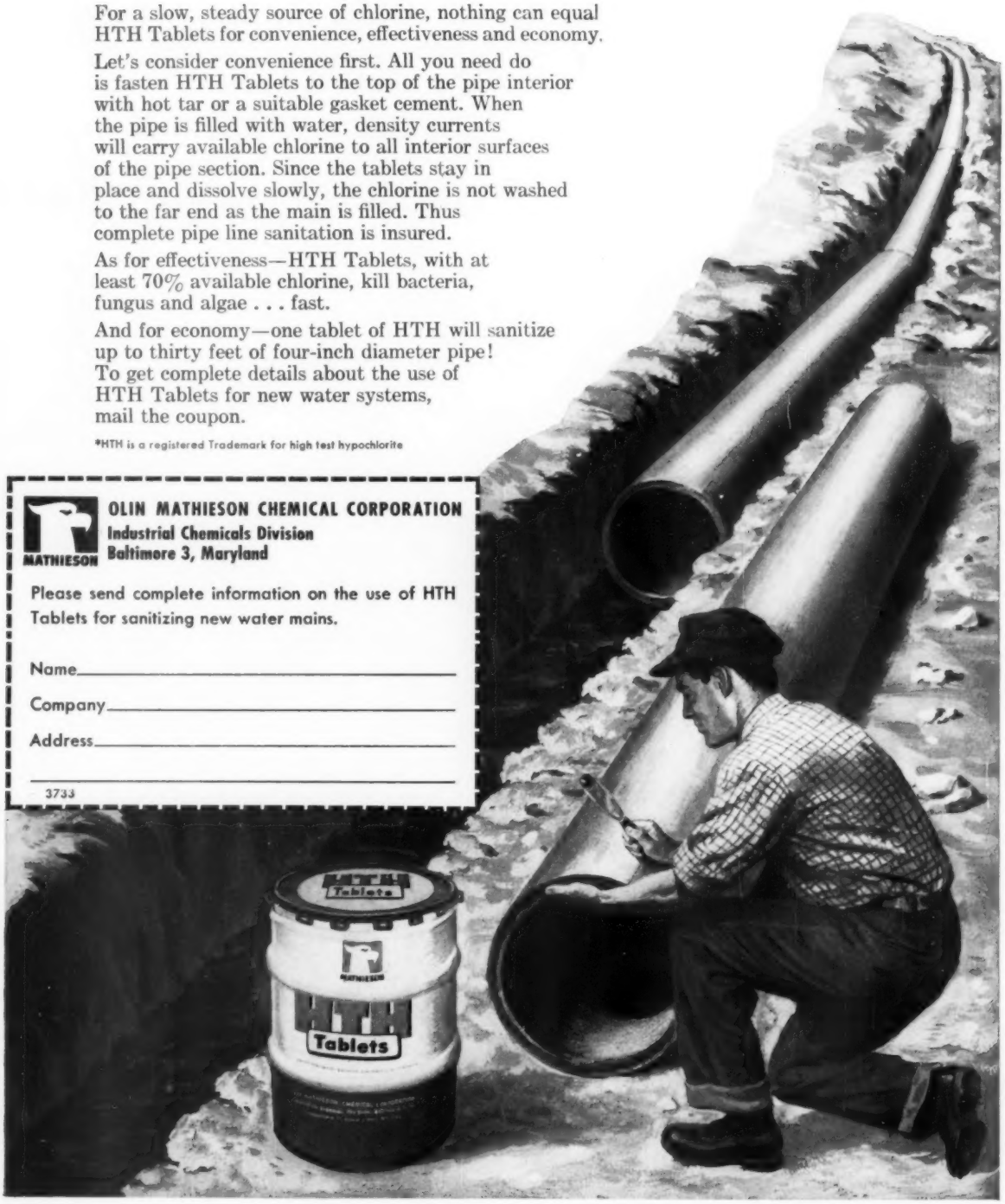

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Crisis in Urban Civil Defense

(Continued from page 171)

etc., be halted pending a review of their purposes. The studies are directed toward finding the best means in each of the participating target areas for protecting local populations against the bombs. Each study is to answer independently the question of whether evacuation or shelter or a combination of both should be the local defensive measure.

The committee believes that the 25 studies, which are being financed with a $20-million allocation of federal funds, will produce "an enormous duplication of paperwork" and are delaying a national decision on a shelter policy. The city-by-city survival plan approach to civil defense planning, the committee believes, is exactly the reverse of that which is required. "An understandable and effective procedure would have been for the FCDA to resolve or decide certain basic national policies and to formulate a master plan in accordance therewith and then to adjust this master plan to the requirements of designated targets chosen on a priority basis". This would seem to be a matter of common sense and or urgent necessity in view of the federal government's responsibility to defend the nation against enemy attack. It is not authoritarian to give effective national direction to local civil defense programs when the objective is survival.

That the report is a significantly important one to all city officials will be immediately apparent to any who read it. It has articulated what mayors, city managers, and local civil defense people throughout the country have long felt but have been unable to put into thoughts as clearly expressed and well-documented as these. If the recommendations for the report are embodied in new legislation at the next session of Congress, cities and towns throughout the country can expect to have lifted from their shoulders the impossible burden of trying to devise and then finance practical means of protecting their populations from attack.

Trolley Coaches Serve Atlanta Well

ONE OF THE FIRST transit systems to offer *Shoppers Specials* in the downtown shopping area (1936) and regularly scheduled express service on heavily traveled routes (1941), Atlanta Transit's successful search for new ways to speed up service and attract new riders now includes the current Park-Ride service. On Monday through Friday transit riders park their automobiles at any one of 71 service stations around the perimeter of the city and ride in to work on a coach or bus.

Trolley Coach the Basic Vehicle

One of the largest trolley coach properties in this country, Atlanta Transit System now has 462 of these swift, silent 45-passenger electric vehicles, operating over 147 route miles, supplemented by 133 motor buses operating over 123 route miles. Of the 85 million passengers carried in 1955, trolley coaches carried approximately 70 million passengers, or about 83%.

On the most heavily traveled coach line, top operating speed is 40 mph, and a passenger is surprised if he waits more than two minutes for a coach during rush hours.

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Officers of the International City Managers' Association at the close of the 42nd annual conference. (Seated (left to right) are: Vice-Presidents Erbin E. Jones, Bartlesville, Okla., and H. M. Crane, LaGrange, Ga.; newly elected vice-presidents Harold C. Pike, Cheltenham Township, Pa.; Virgil Basgall, Junction City, Kans.; T. E. Hinson, High Point, N. C.; Robert Finlayson, Eugene, Ore.; C. A. Miller, Saginaw, Mich. Standing (left to right) are: Orin F. Nolting, ICMA Executive Director; Vice-Presidents Wayne E. Thompson, Oakland, Calif.; Elder Gunter, University City, Mo.; Warren C. Hyde, Edna, Minn.; retiring President Russell E. McClure, Corpus Christi, Texas; newly elected President Samuel E. Vickers, Long Beach, Calif.; past President Clarence H. Elliott, Kalamazoo, Mich., and Vice-President Julian H. Orr, Portland, Me.

Manager Confab Gives Answers On Administrative Problems

42nd annual ICMA conference features long-range view of future, practical advice on attracting trained personnel to city jobs, and a good argument about charging subdivision developers for new schools and park areas.

AMID predictions of an unprecedented future population growth in urban areas of the United States and Canada, officials attending September's 42nd annual meeting of the International City Managers' Association discussed solutions to the host of physical, administrative, and financial problems that the growth is already bringing to their cities. More than 600 members and guests of the Association attended the five-day meeting which was held September 16 to 19 at Banff, Alberta.

Highlighting the meeting was George F. Mooney, executive director of the Canadian Federation of Mayors and Municipalities. Mr. Mooney told the assembled managers that the great urban growth that was ahead would be accompanied by an exceptionally high level of national prosperity in both Canada and the United States. However, he warned that a serious problem would be encountered in obtaining sufficient revenues to pay for the many expansions of urban services that would have to be carried out in the cities and towns.

"If present sources alone are counted on in the future, municipalities will have only two-thirds of the total revenues they will need by 1980," Mr. Mooney predicted. His estimate was based on the findings of a survey of the future needs and requirements of Canadian municipalities compiled for Canada's federal government. He indicated that its conclusions would also apply to cities and towns in the United States.

The solution to this financial crisis will lie in an expanded application in both the United States and Canada of the grant-in-aid principle whereby federal monies are extended to city and town governments to help finance local programs. Mr. Mooney upheld the validity of the grant-in-aid idea by noting that many services, which are best provided on a local basis, contribute to the strength of the nation as a whole. This creates a "community of interest and responsibility" between the federal and municipal governments, thus justifying federal contributions to the cost of providing these services.

Attracting Trained Personnel

Edmond F. Ricketts, field supervisor of the Public Administration Service in Chicago, Ill., called attention to the problem of attracting sufficient numbers of professionally trained personnel into municipal service. He warned that this problem would get increasingly acute as populations and the number of needed municipal personnel increase.

Mr. Ricketts indicated that there is a growing divergence between the advantages of working for governmental employers and private companies. Whereas municipal employment may have had the edge in ad-

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vantages in the 1930's (steadiness of employment, plenty of holidays, etc.) is isn't so today, he said. Overtime at good pay rates, and wage raises that have provided an average of a dollar increase in private employment for every 75-cent increase in public employment have given the clear edge to private employment. "If," as Mr. Ricketts noted, "university enrollments mean anything, then this is an era in which the average young man aspires toward a corporate career, for business school enrollments are ballooning each year while public administration school enrollments are inching up slowly."

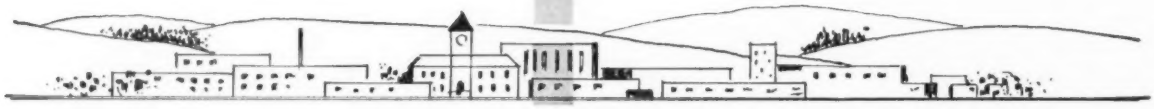
Mr. Ricketts' suggestions for combatting the problem, which is most acute in small cities and towns, included the following:

1. Lose timidity in raising salaries at both the bottom and top of the municipal employment scale.
2. Be sure that fringe benefits such as a 40-hour work week, and the inclusion of social security benefits in retirement systems are up to date and offer close comparisons to private employment benefits.
3. Establish personnel recruiting and administration as a permanent management function in your municipal government. If necessary, form a joint personnel office with other small communities in your region and hire a trained personnel man to assist you in recruiting top personnel and in maintaining top personnel procedures in your governmental organization.

In calling attention to another aspect of the personnel problem, George Bean, city manager of Peoria, Ill., labeled fire and police department integration as one of the hottest topics in the municipal field. (Managers Perry Cookingham of Kansas City, Mo., and Bert Johnson of Evanston, Ill., seconded Mr. Bean on this score in hallway discussions.) Mr. Bean observed that the mounting costs of fire and police protection are forcing city officials to find ways to not only conserve but put to better use existing manpower resources. One way this can be done, Mr. Bean said, is to utilize the substantially unoccupied time of present-day fire-fighting forces. This can come through the development of a single corps of public safety personnel trained to perform police patrol work and as well as fight blazes.

H. K. Hunter, manager of Sunnydale, Calif., said that although firemen in virtually all cities resist moves toward integration, more and more municipalities are recognizing the essential unity of public safety

How would you save a failing sewer in quicksand, 42 feet underground?



Yes, it was a tough question. But Armco Liner Plates provided an easy answer. Here's the chain of events:

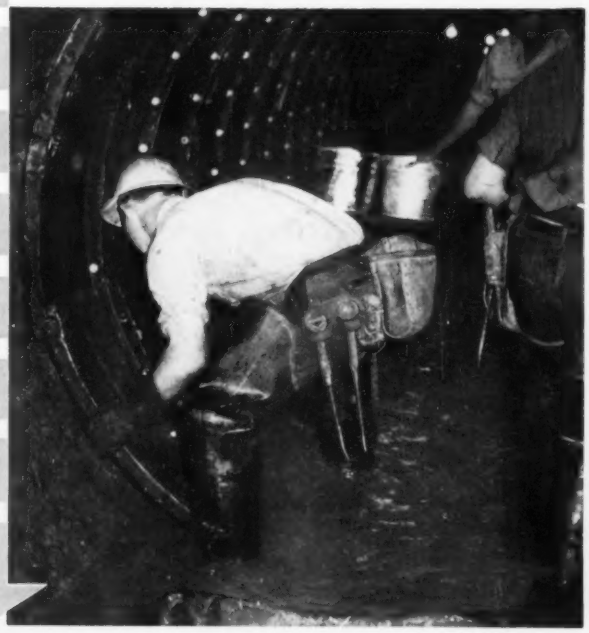
In Owensboro, Kentucky, an 84-inch-diameter rigid pipe trunk line, carrying sanitary and storm sewage, began to fail. It had been tunneled through quicksand, and now was developing large cracks that admitted highly fluid sand. To complicate the problem, the sewer was 42 feet underground and any repair had to be made while the sewer was in operation.

The project was opened to competitive bidding. Armco Liner Plates, combined with the know-how of Armco Construction Service, got the job. The precurved, corrugated metal Armco Liner Plate sections were taken into the failing sewer and bolted together from the inside to make an integral lining structure. No space was wasted. And the offset-lapped joints of Armco Plates provided extra strength.

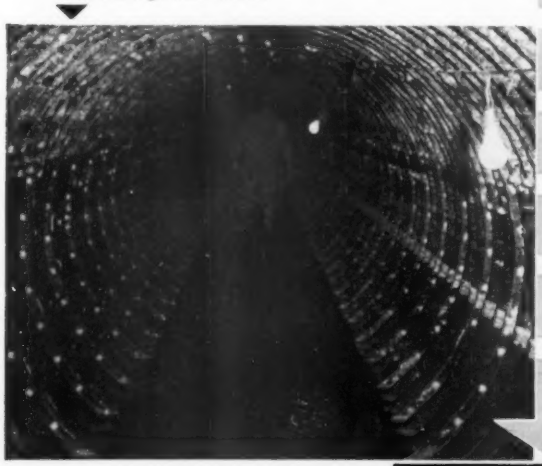
For this sewer lining job, the Armco Liner Plate structure was 72 inches in diameter. The 10-gage plates were bituminous coated.

For more data on Armco Liner Plates, write us. Armco Drainage & Metal Products, Inc. 5486 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: Write Guelph, Ontario. Export: The Armco International Corporation.

RIGHT: Worker is attaching another Armco Liner Plate. Note water flowing during installation and the absence of waste space between the old and new structures.



BELOW: The completed Armco Liner Plate structure being inspected after a siege of high water. Note perfect alignment and high water marks.



ARMCO ARMCO **LINER PLATES**

activities geared to not only protect life and property but to prevent accidents and emergencies. Evidences of this increasing trend toward coordination can be seen, Mr. Hunter said, in the establishment for both fire and police departments of (1) single public safety buildings, and (2) centralized communication systems, plus (3) the selection in some cities of fire and police personnel from the same civil service lists, and (4) the joint training of fire and police personnel in still other places.

Mr. Hunter, whose city of over 26,000 persons has had an integrated system for more than seven years, listed these among the advantages of a combined system:

1. Officers trained in both fire-fighting and police work can be given more flexible assignments.

2. A higher caliber of supervisory personnel can be obtained since there is a broader field for advancement within the integrated system.

3. A cruising patrol car carrying personnel trained in fire-fighting is usually on hand at a fire before regular fire apparatus. (In this connection it was noted that in Oak Park, Mich., 33% of the fire calls have been put out by fire-fighting patrolmen before fire apparatus arrived. In Glencoe, Ill., another integrated city, 25% of the city's fires were put out by integrated patrol cars.)

4. Fire prevention pays off best when handled by a coordinated force. Sunnyvale's prevention program during the past four years has resulted in a numerically smaller number of fires per year despite a doubling of the city's population.

5. All employees in a coordinated system have a unity of purpose.

6. There is a higher degree of adaptability among the personnel.

Who Should Pay For Subdivision Improvements?

Capping the five-day meeting was an attention-getting debate on the question of whether builders or municipal governments should pay for public facilities in new subdivisions. Upholding the municipal side of the argument was Corwin Mocine, planning director of Oakland, Calif., while Frederick Wegner, director of community facilities for the National Association of Home Builders championed the builders' argument.

Mr. Mocine estimated that the provision of street grading, paving, and curbing, plus the installation of sewage and drainage piping for an average 60-foot lot would cost $900 per lot. He also estimated that the additional cost for street trees at one per lot would amount to $15 and that the charges per lot for park and school sites might vary between $30 and $200.

Neighborhood Items Needed

Although Corwin Mocine acknowledged that these charges would be added to the sales price of the house, he noted that these neighborhood items were just as needed as the dishwashers, glassed-in showers, and other equipment now installed and sold with new houses. Other reasons why parks and school sites should be paid for by the subdividers and therefore the home purchasers were listed by Mr. Mocine. These were:

(a) Just as curbs are part of the complete community so are new school sites, and, therefore, the costs of them should be part of the new hometowners' charge for "buying into a complete community."

(b) The financing of portions of the costs of school and park sites as part of the house price is a simple and long-range way for new homeowners to pay for their share of these costs;

(c) The provision of such improvements adds and protects the value of new houses;

(d) Since new schools, parks, and other permanent improvements should be ready for use when new owners move into a

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There is no sliding action of the discs on the seats either in opening or closing. With certain refinements, this mechanism is incorporated in M & H Square Bottom Valves which are especially designed for throttling purposes. Write or wire

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Canton Gets a New Concrete Distribution Line

This crew is putting in the fourth piece of pipe in a 4500-foot concrete feeder line for Canton, Ohio. The line runs from the north corporation line south on Broad, west on 8th, and south on Wertz to 3rd where it ties into an existing 12-inch line. Along the route the new line feeds distribution lines of 6, 8 and 12 inches.

The line went in easily and with little interference to traffic. The backhoe in the picture dug the trench and laid the pipe for the entire line. A supply of short lengths and bevel adapters was kept on the job to make on-the-spot turns to clear obstructions. A bevel adapter is a small special made up of a bell ring and spigot ring set back to back at an angle of 2° to 4°.

The line has been tapped three times since it was laid in 1954. The ¾" taps were made by Canton Waterworks crews using their regular equipment and new-design fixtures furnished by the manufacturer of the pipe. The entire line is 24-inch prestressed concrete cylinder pipe made by Price Brothers Company, Dayton 1, Ohio. Price has plants in Dayton, Cleveland and Miami, Fla.

Price Brothers

community, the only way to get them at the time they are needed is to have them built by developers;

(e) Since most cities have a backlog of community needs, the priority city improvement expenditures should go to projects filling long-term needs that serve old-time residents.

Mr. Wegner disagreed vigorously with Mr. Mocine and declared that the developer should be charged only for the improvements that are needed to serve the homes in his subdivision. He should not, Mr. Wegner stated, be charged for the 12-inch water main that will extend beyond his subdivision and serve other areas, for example. By the same token school-site costs should not be borne by the developer but the entire community.

By requiring builders to supply such prohibitively expensive facilities and then preventing them from operating when they cannot fulfill this obligation, communities will limit the rights of Americans to migrate freely. Capping this, Mr. Wegner said, "It would have been just as reasonable when the Mayflower came to this shore to have said, 'We have no schools, go back.'"

One manager, who was not buying much of Mr. Wegner's reasoning, asked him in a question and answer period if we would have advised the Indians greeting the landing Pilgrims to say: "How! Welcome Pilgrims! As old settlers, we will build your schools."

Elected to the presidency of the ICMA for the coming year was Samuel E. Vickers, City Manager of Long Beach, Calif. Ex-ICMA Executive Director Clarence E. Ridley and University of Michigan Professor Arthur Bromage were cited with honorary membership in the association.

Hard Facing Reduces Maintenance

THE ADOPTION of cost-saving techniques at the Houston, Texas, sewage-disposal plant has again paid dividends. By applying Colmonoy hardface alloy coating to the wear surfaces of cage-mill paddle-wheel blades, replacement costs and maintenance have been substantially lowered.

Covering the entire wearing surface of the blades eliminates any "weak link" that could require early maintenance. The new surfacing allows the cage mill to operate twice as long between blade rebuilding operations as was formerly possible with another type of coating. The protected blades have a useful service life at least six times that of unprotected blades. The cage mills circulate sewage in the Houston fertilizer processing operation.

The Houston plant uses Colmonoy No. 1, an iron-base alloy containing chromium bromides. It is manufactured by the Wall Colmonoy Corp., of Detroit, Mich.

The hard-faced surfacing is easily applied by DC electric arc welding. Note the complete coverage of wearing surface to eliminate "weak spots."

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On instant call. These three 1956 F-350 express models have doghouse-type shelters for transporting men and equipment. Platform is only 2½ feet off ground for easy loading. Max. GVW 8,000 lbs.

Answering an emergency repair call. Here an F-600 with an all-purpose non-dump body is being unloaded on the job. Maximum GVW 19,500 lbs. Lifeguard steering wheel and door latches standard.

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They have found that Fords are built stronger for longer life. Ford delivers more! For example, only Ford gives you modern Short Stroke power in every truck, V-8 or Six. Sodium-cooled exhaust valves in heavy-duty engines run up to 225° cooler, last longer. More comfort with a Driverized Cab . . . only Ford has it. More safety with exclusive Lifeguard features.

For *your* operation it will pay you to look at Ford trucks. Ford trucks cost less . . . Short Stroke engine design for low oil and gas consumption . . . Ford's stronger chassis for longer life . . . and Ford's high resale value. So — from Pickups to 65,000-lb. GCW BIG JOBS, the big fleets are going Ford. See your Ford Dealer and find out why Ford Trucks cost less . . . less to own . . . less to run . . . last longer too!

Starting out for on-the-spot repairs. F-350 truck with special maintenance equipment for emergency repairs. For power—either the 133-h.p. Six or the 167-h.p. V-8. Both Short Stroke design.

Checking operation. Here equipment is being checked by Consolidated Edison maintenance men. This Ford F-350 with Vanette body has a 130-inch wheelbase. Fordomatic Drive available on all light-duty models.

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Niagara Falls' outdoor artificial ice rink is an example of the type of facility best suited for small communities with limited resources. Artificially frozen ice assures skating on warm winter days and extends the season into fall and early spring months, thus making skating a continuous rather than part-time sport.

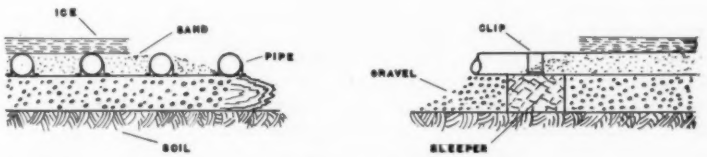
Boom on for Artificial Ice Rinks

Here is a series of design considerations for towns and cities that are planning to build ice-skating rinks that guarantee a good surface on warm winter days

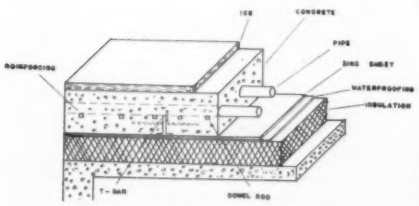
ARTIFICIAL ice-skating rinks are increasing in use in municipalities throughout the country. A recent survey completed by the National Recreation Association has found that there are now 274 artificial ice rinks in 88 cities and towns in the country. More are in the process of being planned and constructed. As an indication of the popularity of these rinks, attendance figures show that a record 688,526 persons flocked to 70 of the artificial ice rinks in 26 of these 88 cities.

Responsible for this boom in municipal ice-rink construction is a combination of factors. In many areas mild winter weather has necessitated the use of refrigeration to provide skating facilities for the public. Then too, the installation of an ice-skating rink, besides providing the public with a healthful and enjoyable form of recreation, has also proved to be a profitable means of more fully utilizing the facilities of the many new municipal auditoriums being built and planned throughout the country.

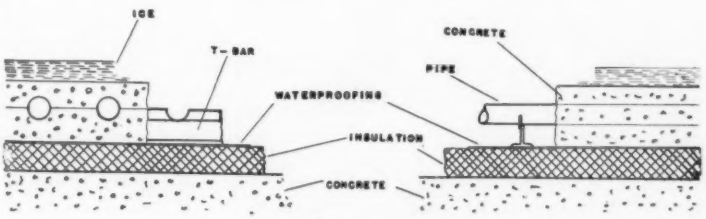
New auditoriums in such widely separated locations as Rochester (Detroit and Rochester both built new rinks in 1953 and 1955), Charlotte, Des Moines, and Spokane are typical of this nationwide trend in



Open Permanent Floor



Carpenter Permanent Floor



Closed Permanent Floor

Cambria County War Memorial in Johnstown, Pa., is a good example of an artificial ice rink installation that provides added recreational facilities as well as a means of increasing the revenues and usefulness of such buildings. Cost of the Memorial, which has 4,000 permanent seats and which can accommodate basketball, tennis, boxing, and other sports events, was $1,550,000.

municipal recreation development. Each of these centers is equipped with ice floors suitable for ice shows as well as hockey and public skating. Even small towns and municipalities are building rinks, although these are outdoor rinks exclusively.

In view of this increasing popularity, park and other city officials may want to consider such rinks in future recreation plans for their own communities. To help them in such studies we have outlined some general facts that should be considered in artificial ice-rink construction.

Basic Elements of Design

The basic elements of artificial ice-rink design are rink size, site, ice floor and freezing equipment, and corrosion control.

Rink size. Artificial rinks vary in size, but most are about 85 feet wide and 185 feet long—the dimensions of an official ice hockey rink. Where hockey is to be played frequently, rinks should have rounded corners, and the entire perimeter should be built up with a wooden barrier 3 or 4 feet wide.

Site. The selection of a good site is important in building an ice rink since unfavorable drainage and soil conditions have been responsible for damage to a number of rinks.

If water is not drained from these areas, it may, upon freezing, break the ice floor and cause serious damage to the piping, footings, and other installation material. Areas having a high water table or having natural collection points for drainage should not be considered unless it is intended to elevate the ice floor above grade-level. Also to be avoided are areas in which the subsoil is not stable or well settled.

In addition to a sufficient area for the rink itself, the site should be able to accommodate such accessory uses as a building to house the refrigeration equipment, indoor or out-of-door areas and benches for changing and checking shoes and skates, a possible concession stand, and ample space for automobile parking. To reduce over-all development costs, the site should be located reasonably near power lines, and water and sewer lines. Finally, if the site is on a bus or trolley line, attendance at the rink can be higher because of the more effective connections to remote parts of the community.

Ice rink floor. There are two general types of permanent ice floors used for artificial rinks: the open type in which the freezing pipes are embedded in sand or crushed stone and the closed, or permanent, type in which the piping is embedded in concrete. A third type of floor—a temporary floor employing plastic piping, which can be dismantled at the end of the skating season is also used.

The open floor is identified with outdoor construction and is the second most expensive to install. However, it is less serviceable since it cannot be used for purposes other than skating.

The permanent, or closed floor, on the other hand, may be installed either indoors or outdoors and is suitable not only for skating, hockey, and ice shows, but can be an all-purpose staging area for shows, political meetings, various sports events, including roller skating, and conventions.

In addition to being a more expensive investment initially, the closed floor may occasionally prove more expensive to maintain. While the concrete does provide an extra measure of protection for the piping, the cost of replacing pipe that is damaged due to internal corrosion attack is many times the expense involved in repairing the piping system of an open rink. When the failed piping is replaced, the concrete must be torn up and new slab and surfacing laid. Often the concrete to be replaced covers a much larger span than the immediate damaged area. This is because the escaped brine used in refrigeration frequently seeps into the surrounding concrete, thus threatening the life of additional sections of the floor piping system.

Another type of permanent flooring known as the Carpenter, or monolithic, floor has been developed and can be used for closed type ice rinks. Normally the permanent floors made use of expansion joints to allow for expansion and contraction of the rink floor. The monolithic floor dispenses with expansion joints by substituting a layer of sheet zinc to separate the rink floor from its underlying support. This type of floor has enjoyed considerable success as a permanent installation and is used in many large areas throughout the country, including the Wollman Memorial Rink in Central Park, New York City.

Roll-Up Rink

The type of ice floor which makes use of plastic piping is commonly known as the roll-up or take-up rink. It is the least expensive. The use of such floors is comparatively recent and was pioneered on a large scale in Detroit, Mich. The roll-up rink has both its advantages and disadvantages. In addition to its low cost, it does not require highly specialized subbases and can be installed almost on any reasonably level surface like paved tennis courts, lawns, or even dirt areas, although a paved area is to be preferred. At the end of the skating season the pipes can be rolled up and stored away until autumn comes again. However, the plastic pipe has a lower thermal conductivity and generates a thinner layer of ice than does metal piping. This lower conductivity, plus the need for sheet

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Particulars on Some Selected Municipal Artificial Ice Rinks

Municipality	1950 Population	Year Built	Size of Rink	Type (Outdoors)	Features	Approx. Cost
Detroit, Mich	1,850,000	1953 1953 1953	83'x140' 85'x120' 85'x185'	Roll-up Plastic Piping		$150,000
Flint, Mich.	163,000	1954	120'x180'	Roll-up Plastic Piping	Construction includes permanent equipment building and a 12-ft. chain link fence; extension of gas and power lines and additional furnaces.	70,000
Hamtramck, Mich.	43,000	1954	85'x180'	Metal Pipes. No concrete floor	Includes electrical work and construction of an equipment room and a concession building.	90,000
Jersey City, N. J.	299,000	1954	85'x190'	Wrought Iron Pipes	Piping installed under playfield at city stadium; existing facilities used for equipment house and shelter.	75,000 (equip. cost)
Toronto, Canada	676,000	1954	120'x178'*	Permanent	Includes small equipment building	125,000
Utica, N. Y.	102,000	1954	85'x185'	Permanent Wrought Iron Pipes	Includes heavy site grading, drainage, retaining wall, fencing and wooden dasher board, electric controls, addition to house refrigerating equipment; existing field house used as shelter.	121,733

* Four built at the same time.

metal protectors to shield the plastic pipe from occasional nicks from skate blades, makes refrigeration operation costs higher.

Piping. The principal kinds of piping material other than plastics are wrought iron or steel. Of the three, wrought iron appears to offer the highest corrosion resistance because of the purity of its base metal. Steel piping used for ice rinks is usually a mild grade, and thus it contains a higher metalloid content and is less pure. Plastic pipe has good corrosion-resistant properties but poorer mechanical properties. At low temperatures it has a tendency to become brittle and crack under light impact. It is also more vulnerable to damage during handling or installation, particularly in cold weather. Currently, various types of plastic pipe are available. Because of its recent origin the life expectancy of plastic piping has not been determined.

The sizing, spacing and layout of rink piping must be determined by cooling requirements, and the allowable temperature of the circulating freezing medium. Most rinks use 1-inch or 1¼-inch pipes with the center to center spacing varying from 3 inches to 4½ inches. In a few installations, a layout consisting of 1¼-inch pipe on 5-inch centers has been successfully used. However, it is usually considered advisable to limit the spacing of 1¼-inch pipe to 4½-inch centers to assure a more uniform freezing rate.

Refrigeration. The selection of the type, arrangement, and location of refrigeration equipment and the piping system used for the refrigerant must take into account a variety of local factors and the type of skating rink planned. In any case, an experienced refrigeration engineer should be consulted.

Costs

In planning for an ice rink, the municipal official is, of course, as much concerned with cost figures as with good rink design. The amount which your town or city should spend on an ice rink is best determined by the needs of the community and by capital funds available.

Construction costs depend on the type and size of rink and many local factors, such as the availability of water and power, facilities for housing refrigeration equipment and for skating shelter.

For a modest municipality, a permanent community rink can be built for as little as $50,000. Last year, Niagara Falls, N. Y., completed an 80-foot by 120-foot artificial rink, for which it budgeted $45,000. A larger size arena rink, approximately 85 feet wide and 200 feet long, suitable for ice shows and hockey, as well as public skating, might cost as much as $150,000. Detroit Department of Parks and Recreation estimates that a roll-up rink about 85 feet by 185 feet can be constructed at an overall cost not to exceed $60,000, including refrigeration unit and all incidentals.

The accompanying table showing information on some selective municipal artificial ice rinks may serve as a rough index to estimating construction.

A serviceable, durable, well-designed ice rink, like any municipal project is built on good planning. When your town or city decides to build an ice rink, the first step to be taken is to obtain the services of a reputable engineering firm that is familiar with the problems of ice-rink construction. From the firm you can expect good counsel regarding specific costs, design, and serviceable material. Secondly, members of your planning agency responsible for the ice rink must acquire some basic knowledge about all necessary equipment and material, the types of ice floor that are available, details of floor construction, etc., to enable them to use sound judgment for the project. This can be obtained by reference to manufacturers' catalogs and by contact with company representatives.

EDITOR'S NOTE: This article is based on material compiled by the National Recreation Association, 8 W. Eighth St., New York, N. Y., and the H. M. Byers Co. of Pittsburgh, Pa.

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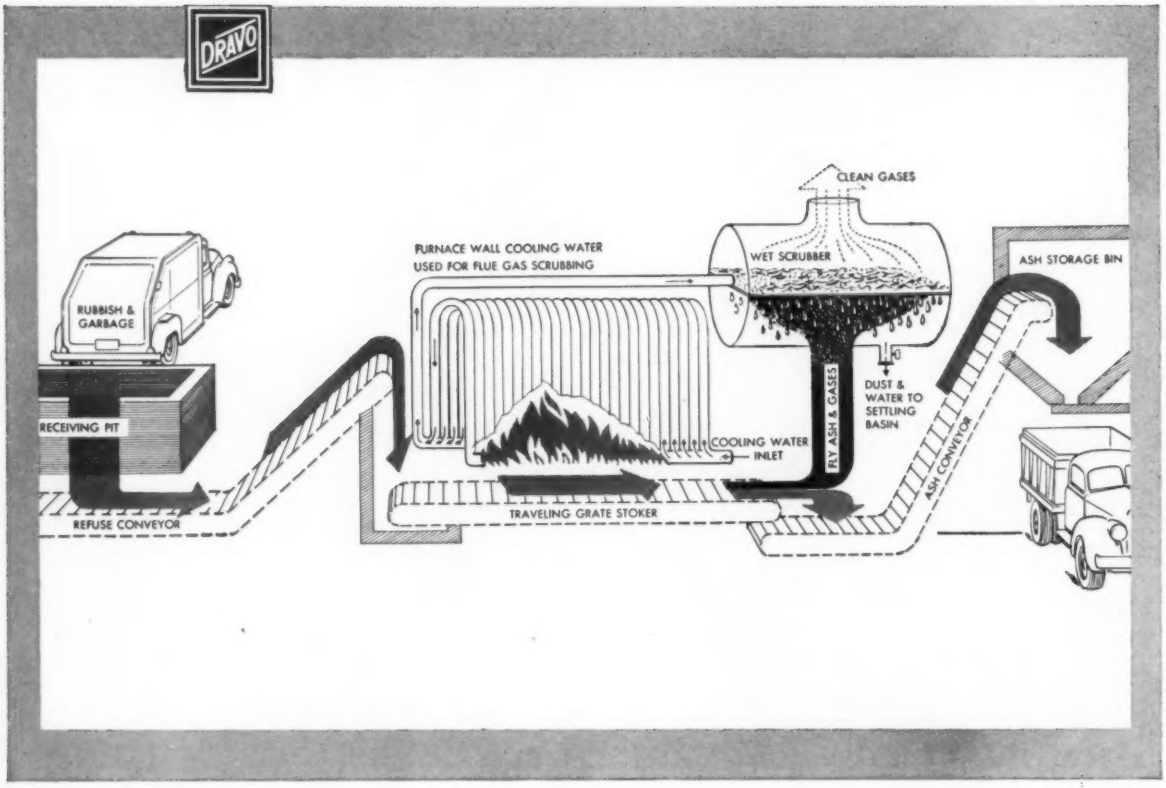

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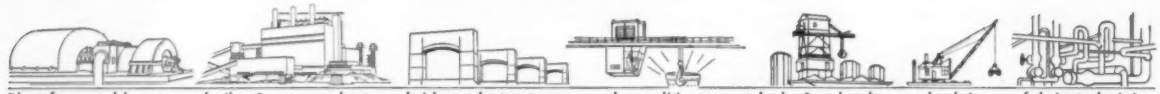

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Edited by NORMAN WILLIAMS, JR.

Zoning & Planning Notes

Multiple Dwellings—Regulation of Bulk

PENNSYLVANIA. *Schwartz* v. *Wagner*, 123 Atlantic (2d) 417 (Supreme Court, June 25, 1956).

PENNSYLVANIA. *Fleishon* v. *Philadelphia Zoning Board of Adjustment*, 122 Atlantic (2d) 673 (Supreme Court, May 21, 1956).

RHODE ISLAND. *Adams* v. *Zoning Board of Review of Providence*, 124 Atlantic (2d) 242 (Supreme Court, June 28, 1956).

In the first Pennsylvania case, multiple dwellings were permitted in one residence district if a special exception were granted by the Board of Adjustment. Pursuant to this provision, a six-story building with 230 apartments was authorized on a 14-acre tract in Elkins Park; and it was subsequently proposed to increase the height of the building to eight stories without increasing the number of apartments, in order to enlarge the parking area.

In the opinion, the Court upheld the permit on the ground that

> "We cannot see how the addition of 20 feet in height on a building set near the center of a 14-acre tract would have any appreciable effect upon the residential character of the neighborhood."

In the second Pennsylvania case, most of the street frontages on a large and irregularly-shaped block were developed, leaving a more or less similarly-shaped interior lot with one small frontage. An application was made for a two-story garden apartment development, with 54 dwelling units around a central court and with an 18,000-square-foot parking lot at one end. Access to the parking lot would be by a 15-foot driveway, which was already used for access to the rear of dwellings on the adjacent frontage. The legal questions involved the adequacy of this driveway for access to the new parking lot, and the application of yard regulations to the development.

In the opinion, the Court held that, with the increase in use, the 15-foot driveway would be wholly inadequate, and criticized the local authorities for ignoring this problem.

> "The Zoning Administrator and the members of the Board who supported him interpreted the phrase in Sec. 26 (10), calling for parking spaces with 'adequate access' to a street or driveway, to require merely that from the parking space a man must be able to drive a car into a driveway, no matter how small and utterly inadequate it may be. In that sense the provision of the Zoning Ordinance is utterly meaningless and we reject such interpretation. To mean anything at all, 'adequate access' must involve the probability that all clearly foreseeable traffic will be able to proceed with reasonable safety to and from the parking area. Furthermore, they did not take the trouble to inquire whether the occupants of these proposed units would have any right to use the existing driveways. Surely, persons having no right to use a driveway cannot be said to have 'adequate (or in fact any) access' to it."

The frontage of the tract was only 64 feet wide, while the rear lot line extended for 220 feet. A front yard was required for "the full width of the lot." The local authorities interpreted the front-yard requirements as applying only across the width along the street line in front, but the Court held that this situation required a variance from the stricter (and rather absurd) interpretation.

The final question involved application of the yard requirements around each separate building, and whether the proposed structure constituted one building or four or more buildings. The local authorities had regarded this as one continuous building, because of the pierced fire walls and the existence of a central heating and water system, and disregarded the existence of separate entrances. However, the Court held that each group of dwelling units with a separate entrance in common should be considered as a "separate building." Under this interpretation, each of 13 separate buildings would require its own front and rear yard; and, since this was impossible or absurd, again a variance would be required.

Here again, bulk requirements — designed for developments with each building obviously on a separate lot—came to grief in connection with a modern large-scale project. This is one of the major unsolved problems of American zoning. As far as yard requirements are concerned, there is an easy way to get around the problem—by defining a "lot" as permitting more than one building, and by defining yards as measured inwards from lot lines. Under this arrangement, there is no need to have lot lines around each building; and, where there are no lot lines, the question of yards does not come up. However, the essential problem—to require a reasonable amount of space between buildings —remains unsolved for large-scale projects.

In the Rhode Island case, the Providence zoning ordinance contained a special provision to deal with this problem in relation to group housing. Under this provision, a parcel of land with a group of dwellings could be considered as one lot; and, where an unsubdivided tract of at least 40,000 square feet was to be developed with group housing, the application of zoning requirements could be varied, subject to specified standards—to preserve the character of the neighborhood, to insure no diminution of open space, and to restrict an increase of density to about 20%. In other words, the question of spacing of buildings was turned over to an administrative agency. Under these provisions, a proposed project with three buildings could have 34 dwelling units, with a fraction left over.

The project in question included 34 dwelling units, plus at least one superintendent's apartment, and the Court held that the latter constituted a 35th dwelling unit, which could not be authorized under the ordinance.

Urban Renewal in Kansas

KANSAS. *The State of Kansas* v. *Urban Renewal Agency of Kansas City*, 296 Pacific (2d) 656 (Supreme Court, April 28, 1956).

The Kansas Urban Renewal law was finally drawn so as to apply to cities with a population of more than 75,000, which presently includes Wichita, Kansas City and Topeka. The extent of coverage was upheld, on the ground that it was reasonable to apply the law just to all the major cities in the state.

> "It is a matter of common knowledge that as cities become more populous they are more subject to slum and blighted areas which are injurious to the public health, safety, morals and welfare of the residents, and in our opinion the population of a city furnishes a legitimate ground for a classification and differentiation such as that contained in the act under consideration."

The Court also held that the broad concept of public use should be followed in Kansas.

> "In our opinion the concept of the terms public purpose, public use, and public welfare, as applied to matters of this kind, must be broad and inclusive. As community life becomes more complex and our cities grow and become overcrowded, the need to use, for the public benefit, areas which are not adapted to the pressing needs of the public, becomes more imperative. Eradication of blighted areas goes to the very essence of public welfare. To hold that the clearance and redevelopment of blighted areas, as defined and characterized by the provisions of the act under consideration, is not a public use of the property and is not in the public welfare, is to close one's eyes to the cold hard facts and realities of every day life."

Variances— No Findings to Support Decision

ILLINOIS. *Lindburg* v. *Zoning Board of Appeals of the City of Springfield*, 133 North Eastern (2d) 266 (Supreme Court, March 22, 1956).

In this case a variance from the lot-area-per-family regulations was granted under a provision authorizing variances for hardship. The variance was challenged on the ground that the standard of "hardship" is still insufficient and illegal in Illinois, under the famous case of *Welton* v. *Hamilton*, 344 Illinois 82. The variance involved the requirements for a stated amount of lot area per family. The Board had not made any findings setting forth the grounds for a variance, as was required by the statute; and for this reason the Court refused to pass on the constitutional question, and held merely that the variance could not be upheld because of the failure to conform to this procedural requirement.

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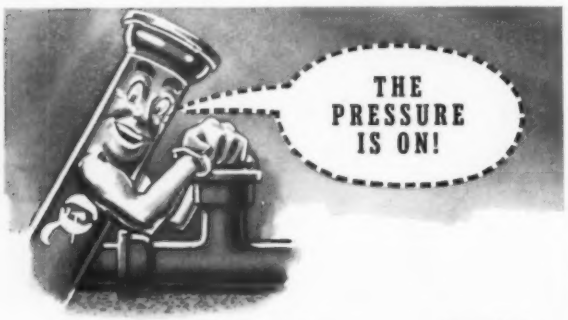

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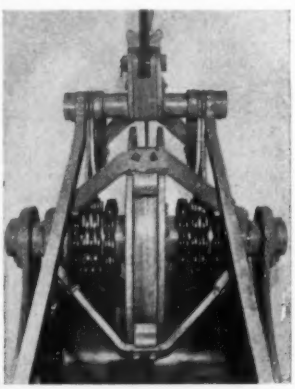

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Zoning Briefs

California

CHARACTER OF AREA ALTERED BY CONSTRUCTION OF FREEWAY. Factory permitted in area zoned as residential. Construction of freeway had taken part of property and had greatly reduced value of portion remaining. Change held not arbitrary and approved as good zoning practice. Case v. City of Los Angeles, 298 P.2d 50. (District Court of Appeal, 2d Dist., Div. 1, June 24, 1956).

Connecticut

FUEL OIL STORAGE TANK NOT A WAREHOUSE. Local authorities granted permission for construction of tank for storage of fuel oil in business zone. Board of Zoning Appeals reversed decision on ground that it should be in industrial zone, likening it to a warehouse. Court held that operation was clearly distinguishable from a warehouse and approved operation in business zone. Fisher v Board of Zoning Appeals of Town of Monroe, 122 A2d 729. (Supreme Court of Errors and Appeals, May 8, 1956.)

ZONING APPEAL BOARD FORBIDDEN TO LEGISLATE. Zoning Board of Appeals approved variance permitting establishment of veterinary hospital in business zone on ground that lack of such hospital in its limits was hardship to town. Court held that such action was exercise of legislative powers that belonged to Zoning Commission, and that function of Board of Appeals was to protect interests of individual property owners and not those of town. Finch v. Montanari, 124 A.2d 214. (Supreme Court of Errors and Appeals, June 25, 1956.)

Florida

RESIDENCE OWNERS GAIN RIGHT TO INTERVENE. Neighboring property owners who had bought their properties in reliance on enforcement of zoning ordinance restricting area to residential use, given permission to intervene in action brought to restrain city from enforcing zoning change. Wags Transportation System v. City of Miami Beach, 88 So.2d 751. (Supreme Court, Special Division A. July 3, 1956.)

Georgia

DISCRIMINATION AMONG CEMETERIES RULED OUT. Application for establishment of cemetery in residence zone denied by local authorities. Court held that cemetery should be permitted on showing that two other cemeteries were in existence in higher class residence zone and that after application for third cemetery (the one in question) had been made, fourth cemetery was permitted in residence zone. City of Rome v. Shadyside Memorial Gardens, 92 S.E. 2d 734. Court of Appeals, Div.No.1. Apr. 12, 1956.)

Indiana

PRECISE COMPLIANCE WITH ZONING STATUTES REQUIRED. Tract of 55 acres rezoned from rural-residential to industrial. Objecting neighbors sought writ in Superior Court. Supreme Court held that suit should have been filed in Circuit Court as provided in statute saying that zoning ordinances create "new rights wholly unknown to common law" and that statute must be strictly followed. State v. Superior Court of Marion County, 135 N. E. 2d 516. (Supreme Court, June 29, 1956).

Louisiana

FAILURE TO PROVE VALUE INVALIDATES APPEAL. Property owner appealed to Supreme Court from decree enjoining him from violating zoning ordinance and ordering removal of buildings. Statute required that such appeal could be taken only when value of property concerned was more than $2,000. No evidence to show that buildings ordered removed were worth more than $2,000. Case ordered transferred to Court of Appeal or dismissed. City of Lake Charles v. Fungay, 88 So.2d 707. (Supreme Court, June 11, 1956.)

OWNERS' RIGHTS PROTECTED DESPITE TECHNICAL DEFECTS IN PRELIMINARY PROCEEDINGS. Rights of owners of property against whom City was seeking injunction for violation of zoning ordinance upheld by Court which denied City's motion to dismiss appeal on purely technical grounds. City of New Orleans v. Longenstein, 88 So. 2d 227. (Court of Appeal, Orleans, June 25, 1956).

Maryland

OFF-STREET PARKING BANNED IN RESIDENCE ZONE NEAR SHOPPING CENTER. In decision concerned mainly with action of lower court which was held to have exceeded its authority, owners of property in residence zone adjacent to commercial zone in which shopping center was planned were denied permission to use land for off-street parking. Robertson v. County Board of Appeals, 122 A. 2d 751. (Court of Appeals, May 10, 1956.)

ADOPTION OF NEW ZONING MAP NULLIFIES APPEAL. While appeal was pending from decision of lower court denying change of classification of two lots from residential to commercial, County Commission adopted new zoning map in which residence status was maintained. Court dismissed appeal with costs charged against appellants. Grau v. Board of Zoning Appeals of Baltimore County, 122 A. 2d 824. (Court of Appeals, May 3, 1956.)

Massachusetts

DOUGHNUT SHOP GETS BENEFIT OF DOUBT. Ordinance permitted drive-in retail establishments for the serving of food and beverages in downtown business district, but restricted plants for manufacture of baked products to separate commercial district. Small shop for baking and sale of doughnuts on premises applied for permission to operate in business district. On appeal Court held that it could do so, as it fell under the definition of retail establishments for the serving of food and beverages. Kraft v. Board of Appeals, of Lynnfield, 132 N.E.2d 163 (Supreme Judicial Court, Feb. 10, 1956).

PROBABLE CHANGE IN ZONING ADMISSIBLE IN EVIDENCE. In condemnation proceedings to take land for new highway, Court held that evidence was admissable indicating a reasonable probability of change in the zoning ordinance to reclassify property in question, from residential to commercial status. State v. Williams, 289 S.W. 2d 64. (Supreme Court, Apr. 9, 1956.)

SAND AND GRAVEL OPERATION PROHIBITED. Ordinance barring operation of sand and gravel pit in area zoned as residential upheld. Attempt to prove right to operate as nonconforming use failed. Town of Lexington v. Simeone, 134 N.E. 2d 123. (Supreme Judicial Court, May 7, 1956.)

Nebraska

DOG KENNEL BARRED: NOT A COMMERCIAL STOCK FARM. Operators of dog kennel sought to take advantage of provision of zoning regulation which permitted commercial live stock farms to continue operation. Property had been formerly used as farm and incidental sales of live stock had been made. Court held that this use was general and not commercial, and operation of dog kennel would be changed from conforming to non-conforming use. City of Omaha v. Gsantner, 77 N.W.2d 663. (Supreme Court, June 22, 1956.)

New Hampshire

BUILDING PERMIT REVOCABLE AFTER REZONING. Building permit for filling station issued before area was rezoned as residential. Court ruled that permit should be revoked after review of evidence which showed that less than $1,000 had been spent and actual construction had not begun. Court also indicated that where substantial expenditures had been made such permit would not be revoked. Winn v. Lamoy Realty Corp. 124 A.2d 211. (Supreme Court, July 6, 1956. Rehearing denied, Aug. 14, 1956.)

New Mexico

CHANGE IN ZONING DOES NOT AFFECT RESTRICTIONS IN DEEDS. In suit to enforce restrictions in deeds, fact that zoning ordinance had rezoned area as commercial was advanced as justification for breaking restrictions. Court held that it had no bearing, saying: "The zoning ordinance does not impair the restrictions imposed on the subdivision—the restrictions remain paramount." Chuba v. Glasgow, 299 P.2d 774. (Supreme Court, July 17, 1956. Rehearing denied Aug. 10, 1956.)

Ohio

CONSTRUCTION OF SYNAGOGUE APPROVED. Jewish congregation desired to build synagogue in area zoned for single-family residences. Site was on city line and across road in other municipality was golf course. Rule of congregation required that members walk to synagogue. Zoning and Planning Commission had power to grant variance but in this case refused. Held abuse of discretion and that decision barring synagogue had no relation to the health, general welfare, safety or morals of the community. Young Israel Organization of Cleveland v. Dworkin, 133 N.E.2d 174. (Court of Appeals, Mar. 14, 1956).

Pennsylvania

APARTMENT HOUSE PERMITTED DESPITE OBJECTIONS. Procedural issue developed when attempt was made to prevent erection of apartment house by owners of neighboring property not in same zone. Action of lower court in permitting erection of apartment building affirmed. Wynnewood Civic Association v. Town of Lower Merion, 119 A.2d 799 (Superior Court, Jan. 17, 1956).

Rhode Island

ACTION INVALID BECAUSE NO REASONS STATED. Zoning Board of Appeals granted permission for extension of automobile body works in commercial zone on adjoining lot in residence zone, but failed to state its reasons for that action. Court held that as record was "barren of clues" to reasons for Board's decision, its action was invalid. Perrier v. Board of Appeals, 124 A.2d 237. (Supreme Court, July 25, 1956.)

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Annexation—Ordinances Enacted Prior to Passage of 3 Days Invalid

Annexation Ordinances introduced on Dec. 2, 1952, and purportedly adopted on Dec. 5, 1952, were void because they were enacted in violation of the Third Class City Code providing at least three days must lapse between date of introduction of ordinance and date of passage. *In re Lanchester City Ordinance*, 119 A.2d 307 (Pa., Jan. 3, 1956).

City Dump—Right to Condemn Land for Valid

Under an act giving a municipality the right to provide for collection and disposal of garbage, refuse and other waste matter, and under act giving the municipality right to acquire by condemnation real estate which the municipality decides is necessary for the proper exercise of any power conferred upon it by law, held, municipality could condemn land for a garbage dump. *Township of Dover in County of Ocean* v. *Kassenoff*, 118 A.2d 57 (N. J. Super. App.Div., Nov. 3, 1955).

City Employees—Retirement Income Vested Right

In proceeding by discharged employee to require retirement board to pay him compensation, held, provision of city ordinance giving any person employed by city a vested right in retirement fund, did not exceed authority conferred on city in enabling act by state. *Wallow* v. *Officers and Employees' Retirement Board of City of York*, 117 A.2d 685 (Pa., Nov. 14, 1955).

Civil Service—Reinstatement Claim Barred By Laches

In action for reinstatement to opposition of boilers and pressure vessels inspector in civil service, such claim was barred by laches where plaintiff waited 19 months from date on which he was discharged and 16 months from date his discharge was sustained by the Civil Service Commission. *Corcoran* v. *City of Los Angeles*, 289 P.2d 556 (Cal. App., Nov. 9, 1955).

Condemnation—Artificially Created Land, Evidence Admissible

Where city condemned land and was estopped from denying the validity of a lease of that land and was not permitted to introduce evidence upon the question of whether the leased land was artificially made in Lake Erie; this constituted prejudicial error. *Cleveland Boat Service* v. *City of Cleveland*, 130 N.E.2d 421 (Ohio App., Nov. 30, 1955).

Contracts—Rescission of Award To Low Bidder Invalid

Where City Council passed a resolution declaring a contractor to be the lowest bidder and awarding him the contract, the contract was completed and in absence of fraud, mistake or some other ground for rescission, the city was without power to rescind its action and award the contract to the second lowest bidder. *City of Susanville* v. *Lee C. Hess Co.*, 290 P.2d 520 (Cal., Dec. 2, 1955).

Garbage Truck—Causes Injuries, Negligence Questions for Jury

Where city garbage truck struck a scaffold and caused plaintiff to be injured, held, questions of truck driver's negligence and contributory negligence by plaintiff in failing to use reasonable care for their own safety, were for the jury. *City of Baltimore* v. *Walker*, 118 A.2d 657 (Md., Dec. 6, 1955).

Housing—Meeting to Protest Admission of Negroes, Negro Motorist Injured, City Liable

In action, under the State Act to Suppress Mob Violence, by Negro motorist for injuries received from mob when he was in vicinity of housing development where a meeting was being held to protest rentals to Negroes, held, evidence was sufficient to make out a prima facie case under the statute. *Slaton* v. *City of Chicago*, 130 N.E.2d 205 (Ill. App., Nov. 22, 1955).

Natural Gas Odors and Station Noises Nuisance, City Liable

An award of $100 for inconvenience and annoyance and $250 for depreciation in value of plaintiff's home on account of obnoxious odors and loud noises emanating from the city's natural gas reduction station was supported by, and was not inadequate under the evidence. *Edge* v. *City of Booneville*, 83 So.2d 801 (Miss., Dec. 12, 1955).

Noise—Zoning Provisions Valid

Where noise created by plaintiff's manufacturing business constituted a nuisance, Chicago zoning ordinance prohibiting certain noisy manufacturing processes was not invalid in its application to plaintiffs and their property. *Dube* v. *City of Chicago*, 131 N.E.2d 9 (Ill., Nov. 23, 1955).

Notice of Claim—Broken Arm Not Sufficient Incapacitation for Waiver of Notice Requirements

Where claimant's injury consisted of a broken arm, she was not physically incapacitated as to entitle her to file a claim against the City of Rochester after expiration of the statutory period. *In Re Menzel*, 146 N.Y.S. 2d 8 (Sup.Ct. App.Div. 4th.Dept., Nov. 16, 1955).

Parks—Village Could Validly Sell Property

Board of trustees of Village of Babylon had authority to sell property allegedly restricted for park purposes where land in question was never dedicated or used for park purposes and neither deed of conveyance nor judgment registering title restricted or conditioned its use to park purposes. *O'Shea* v. *Hanse*, 147 N.Y. S. 2d 792 (Sup. Ct. Sp. Term Suffolk Cty., Nov. 16, 1955).

Pensions—Where Payment Improperly Refused, Withheld Principal Plus Interest Must Be Paid

Where municipality, acting under a statute that the courts later found inapplicable, refused to pay a retirement pension to a former employee, the employee could recover the principal and interest on each monthly payment withheld as it came due, until the date of the actual payment. *Mauch* v. *Pension Board of City of Pittsburgh*, 119 A.2d 193 (Pa., Jan. 3, 1956).

Policeman's Claim Against City—Attorney's Fees Prorated

In action by a policeman and attorney who represented policeman in effecting a settlement of a claim for injuries received by policeman when struck by a car while on duty, for declaration as to whether city must pay attorney's fees out of portion of settlement subrogated to city by virtue of having paid wages to policeman while he was incapacitated, held, fees and costs would be prorated between portion of fund to be retained by policeman and portion to which city was subrogated. *Furia* v. *City of Philadelphia*, 118 A.2d 236 (Pa., Nov. 16, 1955).

Sewage—City Liable for Contamination of Creek

In action against city for dumping sewage into a creek, held, city liable, and instructions submitting question of whether city had acquired prescriptive right to empty sewage into creek was, although erroneous under proof establishing city's right to do so, not prejudicial. *City of Meridian* v. *Tingle*, 84 So.2d 388 (Miss., Jan. 3, 1956).

Sidewalks—Fall Causing Injury—Due to Valve Hole Cover—Water Board Not Liable

Where plaintiff fell and sustained injuries because of a hole in the sidewalk improperly covered, held, where valve in hole was for abutting owner's convenience in draining the pipes and the sewerage district had no interest in it, the water board had no duty to maintain the cover for the hole and was not liable to pedestrian. *Johnson* v. *Sewerage and Water Board of New Orleans*, 84 So.2d 229 (La. App., Jan. 3, 1956).

Streets—Child Burned by Torch—Contractor Liable

Defendant was liable for injuries to child sustained because of a highway torch placed within six feet of end of walk leading to the child's house while defendant was constructing a sewer for the city. *Cipollone* v. *D'Allessandro-Crognale, Inc.*, 131 N.E.2d 754 (Mass., Jan. 31, 1956).

Sunday Closing Laws—Valid as Applied to Automobile Dealers

Ordinance requiring any corporation engaged in the business of selling, dispensing or distributing at wholesale or retail, goods, wares, merchandise of any kind, or description in an established place of business on Sunday was valid as applied to automobile dealers. *Humphrey Chevrolet* v. *City of Evanston*, 131 N.E.2d 70 (Ill., Nov. 23, 1955).

Water—All Residents of Subdivision Entitled to Service

Under a contract between realty company representing a subdivision and the city, the right to use water in the subdivision was not limited to the owners of land over which the right of way for the pipeline passed but extended to all owners of land in the subdivision. *Sawyer* v. *City of San Diego*, 292 P.2d 233 (Cal. App., Jan. 24, 1956).

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Recent City Manager Appointments

Charles D. Hatch
Caribou, Maine

J. McDonald Wray
Beaufort, S. C.

Edward T. Lewis
Quincy, Mass.

William E. Besuden
Hudson, Mich.

Alan G. Davis
Greenville, Mich.

HAROLD S. ATKINSON, town engineer at Franklin, Va., was recently appointed city manager of that city to succeed Thomas Noland.

The first manager of Hudson, Mich., is WILLIAM E. BESUDEN, assistant to the manager, Ottumwa, Iowa.

CHARLES BUCKNER, JR., superintendent of public works, was appointed the first manager of Eau Gallie, Fla.

Greenville, Mich., has appointed ALAN G. DAVIS, city engineer, as its first manager.

Caribou, Maine, has appointed CHARLES D. HATCH, Chairman, Town Council, to succeed Donald E. Chick as city manager.

O. G. HOLWAY left the managership at Hazel Park, Mich., to succeed Norman R. Barnard as city manager of Troy, Mich.

EDWARD T. LEWIS, administrative assistant, Quincy, Mass., was appointed city manager of Quincy, succeeding Donald H. Blatt.

Dewey, Okla., has appointed HUEY LONG, city manager of Ataka, Okla., as its first city manager.

OAKLEY K. PORTER, who was recently appointed city manager of Manchester, Vt., to succeed Walter I. Leland, has a bachelor of science degree in civil engineering from the University of Maine and interned at Wells, Maine.

JOHN D. POWELL, former utilities engineer of Georgia School of Technology was appointed city manager of Decatur, Ga., succeeding L. V. Bean, who retired because of ill health.

DAVID D. ROWLANDS, city manager of Eau Claire, Wis., was appointed city manager of Tacoma, Wash., succeeding Frank H. Backstrom.

GEORGE A. SHAW, assistant city manager at Mexico, Mo., was appointed city manager of Walled Lake, Mich., succeeding A. J. Koenig.

BERNARD F. SMITH, city manager of Hanover, Pa., for the past two-and-one-half years, was appointed city manager of Lewiston, Pa., succeeding Bernard L. Marsh.

MURRY D. SNYDER, recently was appointed city manager of Globe, Ariz., succeeding Bernard Arnett.

A. C. SPEARS, the administrative assistant at Borger, Texas, became city manager of that city upon the retirement of Fritz Thompson.

JOHN S. TAYLOR, city manager of Bridgewater, Maine, was appointed city manager of Hermon, Maine, to succeed Elton M. Rich.

DEAN VAN NESS, city manager of Watertown, Wis., was appointed city manager of Lake Geneva, Wis., a new council-manager city.

JAMES H. VAN ORDEN, construction engineer with a sewage degree from Michigan State College, was appointed city manager of Flat Rock, Mich.

HOMER J. WALT, city manager of Benicia, Calif., was appointed city manager of Sparks, Nev., succeeding C. B. Kinnison.

DANA T. WHITMAN, assistant city manager of Birmingham, Mich., was appointed the first city manager of Newton, N. J.

RINEY F. WILBERT, city manager of Ulysses, Kans., was appointed city manager of Delta, Colo., to succeed L. R. Kuiper.

Succeeding W. T. McIlwain as city manager of Coral Gables, Fla., is IRA F. WILLARD, city manager of Alexandria, Va.

J. MCDONALD WRAY, assistant manager of Charleston County, S. C., succeeded Ernest P. Kidd as city manager of Beaufort, S. C.

FRED J. YOUNG was recently appointed city manager of La Grande, Ore., succeeding Jess M. Parker.

ORIN F. NOLTING
Executive Director
International City Managers Association

David D. Rowlands
Tacoma, Wash.

Ira F. Willard
Coral Gables, Fla.

O. G. Holway
Troy, Mich.

Charles Buckner, Jr.
Eau Gallie, Fla.

Huey Long
Dewey, Okla.

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Nov. 7-9—Old Point Comfort, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Meeting (Hotel Chamberlin). Sec.-Treas., J. P. Kavanagh, 213 Carlton Terrace Bldg., Roanoke, Va.

Nov. 10-12—Atlantic City, N. J.
ADULT EDUCATION ASSOCIATION OF THE UNITED STATES. Annual Convention (Chalfonte-Haddon Hall). Administrative Coordinator, Malcolm S. Knowles, 743 N. Wabash Ave., Chicago 11, Ill.

Nov. 11-13—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention (Hotel Marion). Exec. Dir., Glenn G. Zimmerman, 416 Maple St., North Little Rock, Ark.

Nov. 11-13—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, 537 S. 4th St., Springfield, Ill.

Nov. 11-14—Daytona Beach, Fla.
AMERICAN WATER WORKS ASSOCIATION—Florida Section. Annual Meeting (Daytona Plaza Hotel). Sec., Jay D. Roth, City Hall, Miami Beach.

Nov. 11-14—Memphis, Tenn.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Peabody Hotel). Exec. Dir., Alfred Willoughby, 47 E. 68th St., New York 21, N. Y.

Nov. 11-18—Tucker's Town, Bermuda
AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION. Annual Convention (Castle Harbour Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

Nov. 12-14—Charlotte, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section. Annual Meeting (Charlotte Hotel). Exec. Sec., W. E. Long, Jr., Chief, Pollution Control Section, State Stream Sanitation Committee, State Board of Health, P. O. Box 2091, Raleigh, N. C.

Nov. 12-15—Miami, Fla.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Biscayne Terrace Hotel). Sec.-Mgr., B. Richter Townsend, Hotel Martinique, Broadway at 32nd St., New York 1, N. Y.

Nov. 12-16—Atlantic City, N. J.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Convention Hall). Exec. Sec., Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Nov. 13-16—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Convention (Chalfonte-Haddon Hall). Exec. Dir., Mrs. Madeline S. Frost, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 13-16—Los Angeles, Calif.
NATIONAL TAX ASSOCIATION. Annual Convention (Biltmore Hotel). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Nov. 15-17—Fort Lauderdale, Fla.
FLORIDA LEAGUE OF MUNICIPALITIES. Annual Convention (Lauderdale Beach Hotel). Exec. Sec., Gordon T. Butler, 401 Exchange Bldg., Jacksonville, Fla.

Nov. 25-28—St. Louis, Mo.
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Park Plaza-Chase). Exec. Dir., Patrick Healy, Jr., 1625 H St., NW., Washington 6, D. C.

Nov. 25-29—Miami Beach, Fla.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Hotel Seville). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Nov. 26-28—Colorado Springs, Colo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Broadmoor Hotel). Sec.-Treas., Jack W. Davis, 301 Continental Oil Bldg., Denver, Colo.

Nov. 27-28—St. Louis, Mo.
GOVERNMENT PUBLIC RELATIONS ASSOCIATION. Meeting with the American Municipal Association (Hunt Room, Chase Hotel). Exec. Dir., Mrs. Pan Dodd Wheeler, Box 8260, University Station, Knoxville, Tenn.

Nov. 27-30—Atlantic City, N. J.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Traymore Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

***Nov. 29-Dec. 1—Havana, Cuba**
AMERICAN WATER WORKS ASSOCIATION—Cuban Section. Annual Meeting (Cuban Society Engineers Building). Sec., Laurence H. Daniel, President, Laurence H. Daniel, Inc., Baratillo 9, Havana, Cuba.

Dec. 2-5—Philadelphia, Pa.
PENNSYLVANIA LEAGUE OF CITIES. Annual Convention (Bellevue-Stratford). Exec. Dir., John N. O'Neil, Room 302, City Hall, Harrisburg, Pa.

Dec. 3-7—Stillwater, Okla.
OKLAHOMA SHORT SCHOOL FOR WATER & SEWAGE OPERATORS. Annual Short School (Student Union Building, Oklahoma A&M College). Exec. Sec., H. M. Crane, Sanitary Engineer, State Department of Health, 3400 N. Eastern, Oklahoma City, Okla.

Dec. 4-7—Chicago, Ill.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Convention (Edgewater Beach Hotel). Exec. Dir., Loula Dunn, 1313 E. 60th St., Chicago 37, Ill.

Jan. 7-11—1957—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (Sheraton-Park). Dir., Fred Burggraf, 2101 Constitution Ave., Washington, D. C.

Jan. 17-18—New York, N. Y.
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Hotel Belmont Plaza). Exec. Sec., R. C. Sweeney, State Department of Health, 21 N. Broadway, White Plains, N. Y.

***Jan. 23-25—Berkeley, Calif.**
INSTITUTE OF TRANSPORTATION AND TRAFFIC ENGINEERING. Annual California Street and Highway Conference (Durant and Shattuck Hotels). Exec. Sec., Bob Glenn, Engineer and Extension Representative, I.T.T.E., University of California, Berkeley, Calif.

Jan. 28-Feb. 2—Chicago, Ill.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention and Road Show (Chicago Amphitheater). For further information address the ARBA, 600 World Center Bldg., Washington 6, D. C.

Jan 31-Feb. 1—Wilmington, Calif.
ANNUAL INSTRUMENT SHORT COURSE. (Los Angeles Harbor Junior College). Sec.-Treas., George Forster, 640 Fillmore St., Fillmore, Calif.

Feb. 6-8—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Sheraton-Lincoln). Sec.-Treas., R. J. Baker, 113 Monument Circle, Indianapolis.

***Feb. 12-14—Buffalo, N. Y.**
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Hotel Statler). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

***Feb. 19-22—Palo Alto, Calif.**
CALIFORNIA MUNICIPAL UTILITIES ASSOCIATION. Annual Meeting (Ricky's Studio Inn Hotel). Sec., F. V. Frey, 100 N. Garfield Ave., Room 108, City Hall, Pasadena, Calif.

***Feb. 25-27—Atlanta, Ga.**
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Atlanta Biltmore). Sec.-Treas., Ward K. Parr, 1224 E. Engineering Bldg., Box 376, Ann Arbor, Mich.

***Feb. 27-March 1—Atlantic City, N. J.**
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Convention (Traymore Hotel). Sec-Treas., Kenneth D. Rice, 1035 Parkway Ave., Trenton, N. J.

***March 1-2—Houston, Texas**
TEXAS BEACH AND POOL ASSOCIATION. Annual Meeting (Shamrock-Hilton Hotel). Sec., V. M. Ehlers, State Health Department, Austin, Texas.

***March 3-8—College Station, Texas**
TEXAS WATER AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Student Union, Texas A&M College). Sec.-Treas., Mrs. E. H. Goodwin, 2202 Indian Trail, Austin, Texas.

***March 6-10—Washington, D. C.**
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (The Shoreham Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Room 2130, Chicago 1, Ill.

***March 10-12—Charleston, S. C.**
SOUTHERN ASSOCIATION OF COMMERCIAL ORGANIZATION EXECUTIVES. Annual Convention (Francis Marion Hotel). Sec.-Treas., Opie L. Shelton, Chamber of Commerce, Baton Rouge, La.

***March 11-14—Washington, D. C.**
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. Annual Convention (Statler and Mayflower Hotels). Exec. Dir., James D. Marshall, 1227 Munsey Bldg., Washington 4, D. C.

***March 13-15—Atlantic City, N. J.**
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting (Chalfonte-Haddon Hall). Sec., Bailey B. Pepper, Rutgers University, New Brunswick, N. J.

***March 13-15—Atlantic City, N. J.**
NEW JERSEY SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Traymore Hotel). Sec.-Treas., M. S. Kachorsky, P. O. Box 68, Manville, N. J.

March 17-21—San Francisco, Calif.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Planning Conference (Sheraton Palace). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

***March 20-22—Chicago, Ill.**
AMERICAN WATER WORKS ASSOCIATION—Illinois Section. Annual Meeting (LaSalle Hotel). Sec.-Treas., D. W. Johnson, 122 S. Michigan Ave., Chicago, Ill.

March 21-23—Chicago, Ill.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Conference (Hotel Sherman). Sec.-Treas., Miss Laverne Burchfield, 1313 E. 60th St., Chicago 37, Ill.

***April 5-6—Great Falls, Mont.**
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Rainbow Hotel). Sec.-Treas., A. W. Clarkson, Division of Environmental Sanitation, State Board of Health, Helena, Mont.

***June 12-19—The Hague, Netherlands**
CONGRESS OF THE INTERNATIONAL UNION OF LOCAL AUTHORITIES. For additional information address Herbert Eimmerich, American Committee for International Municipal Cooperation, 1313 E. 60th St., Chicago 37, Ill.

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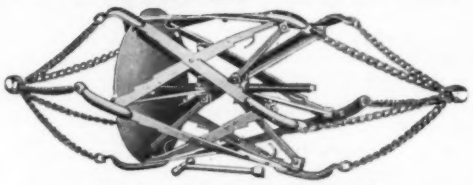

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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

New Techniques in Managing and Operating Municipal Utilities

MUNICIPAL UTILITY ADMINISTRATION—*League of Wisconsin Municipalities, 30 East Johnson Street, Madison 3, Wis.* 1956. 59 *pp.* $2.

This booklet deals with the various aspects of municipal utility administration with special application to the State of Wisconsin. The series of articles, made up primarily of talks given at the Institute on Municipal Utility Administration held in Madison earlier this year, include "Patterns of Municipal Utility Administration," "The Legal Status of Municipal Utility Commissions," "The Relationship Between the Governing Body and the Municipal Utility," "The Relationship Between Municipal Utilities and the Public Service Commission," and "Methods of Financing Water Main Extensions."

Noise Control in Cities and Towns

NOISE CONTROL, JULY 1956—*Vol. 2, No. 4, published by the Acoustical Society of America.* 1956. 96 *pp. Single copies* $2.

The July issue of this publication is devoted entirely to problems on city and community noise. Noise control and its relationship to city planning, plant planning, airport planning and planning for vehicular and surface transportation is discussed. Legal aspects of noise control and other important subjects are also analyzed by top experts in the field.

This issue should be of particular interest to all planning officials, city managers, and others concerned with the problem of noise control.

City of Beverly Hills Employees' Handbook

PARTNERS IN PROGRESS—*City of Beverly Hills Employee Handbook, Beverly Hills, Calif.* 1956. 27 *pp.*

This booklet issued by the City of Beverly Hills for employees is an example of a well-designed employee handbook. It includes a brief history of the city, a description of the city government and lists general regulations and benefits governing municipal workers.

Municipal Finance Statistics for 1955

COMPENDIUM OF CITY GOVERNMENT FINANCES IN 1955—*U. S. Department of Commerce, Bureau of the Census. U. S. Government Printing Office, Washington 25, D. C.* 1956. 153 *pp.* 75 *cents. Summary copy,* 15 *cents. Order from the Superintendent of Documents.*

The cost of government for the nation's 481 largest cities continued to rise at substantial rates during 1955, setting new records for municipal finance operations for the year. This report presents a breakdown of city government finance in 1955 for the 481 cities having more than 25,000 population in 1950. Statistical tabulations show revenue (by source, population); city expenditure (by character, object); retirement systems; and financial holdings. The report also carries financial data on selected urban towns and townships.

Looking at the Region Scientifically

PAPERS AND PROCEEDINGS: VOLUME II—*The Regional Science Association Second Annual Meeting, December* 1956. *Edited by Gerald A. P. Carrothers. Regional Science Association, Cambridge, Mass.* 1956. 332 *pp. Address inquiries to Prof. Walter Isard, Department of Economics, The Wharton School, University of Pennsylvania, Philadelphia, 4, Pa.*

The increasing interest in the region as a planning unit—be it metropolitan or rural—increases day by day. The inescapable fact that problems of many municipalities are solvable only in terms of the regions in which these communities are has brought about a study of the science of regionalism. Hence the formation of this association, the Regional Science Association. Although a young group, this organization has already published a series of learned papers which help to define this new science and to push forward the understanding of the economic, social, and physical interrelationship in regions. Included in this book are 23 papers organized under these following headings: (1) the nature and scope of regional science; (2) basic interrelations in regional development; (3) basic research problems of the urban-metropolitan region; (4) urban growth and development; (5) statistical investigation of regional structure and reactions; (6) gravity and potential models of spatial interaction, and (7) miscellaneous contributed papers.

Benefits of Multiple Issue Bond Offerings

BIDDING ON A MULTIPLE ISSUE MUNICIPAL BOND OFFERING—*Special Bulletin 1956A, Municipal Finance Officers Association of the United States and Canada,* 1313 *East 60th St., Chicago* 37, *Ill.* 1956. 4 *pp.* 50 *cents.*

Should a municipality combine several authorized bond issues into one large offering? This pamphlet discusses the benefits of multiple issue offering and includes opinions from municipal finance officers, financial consultants and investment bankers.

Well-Written Plan for Elizabeth, N. J.

A BILL OF SIGHTS: MASTER PLAN, *City of Elizabeth, N. J.—Prepared for the Planning Board of the City of Elizabeth, New Jersey by the Community Housing & Planning Associates,* 20 *Vesey St., New York* 7, *New York.* 84 *pp.*

Unlike many communities throughout the country that can expect very rapid rates of growth for the future, Elizabeth is a town which will not grow substantially but, instead, will remain almost stagnant as far as population increase is concerned. Consequently, the basic elements of the plan for Elizabeth are preservative and reconstructive in nature. The plan recommends enlargements of facilities, schools, recreation areas, etc., that are deficient in size. It prescribes the redevelopment of neighborhoods of run-down housing, suggests future thoroughfare plans, and prescribes at the end of the plan, a long-range capital improvement program and future zoning improvements. The report is a very well written document.

Urban Renewal Techniques Reviewed and Analyzed

PROCEEDINGS REDEVELOPMENT SECTION—*Conference on Working Problems in Urban Renewal, February* 1956—*Special Publication No. 10 Renewal Information Service, National Association of Housing and Redevelopment Officials,* 1313 E. 60*th St., Chicago* 37, *Ill.* 1956. 26 *pp.* $2.50.

One of the very important conferences held this year on urban renewal was the East Lansing, Mich., meeting, held from February 19-22. Proceedings of the meeting are contained in this excellent RIS booklet. The sessions at the conference covered the whole range of the urban renewal idea, and those who participated in the conference were the top specialists now active in the renewal field throughout the country.

Titles of some of the sessions included "Local Financing For Renewal," "Coordinating Urban Renewal," "Redevelopment Disposition Methods," and "The Effect of Urban Renewal on City Development." Other sessions dealt with "conservation rehabilitation" and developing land disposition plans.

1955 Convention of American Society of Planning Officials

PLANNING 1955—*American Society of Planning Officials,* 1313 *East 60th St., Chicago* 37, *Ill.* 1956. 216 *pp.* $4.

This is a collection of selected papers delivered at the 1955 joint conference of the American Society of Planning Officials and the Community Planning Association of Canada in Montreal.

Some predictions brought out in the section on Planning For Tomorrow's World are:

1. The automobile will increasingly condition the future pattern of living;
2. There will be continued decentralization not only of population but of factories and offices into the countryside.

"This mode of decentralized living provides less variety of face to face contacts and more time must be allocated to the journey to work, the journey to shop, the journey to school, etc."

3. Automation will create a wide-range problem for future governments. Although automation will create many new employment opportunities but "the persons whose jobs are destroyed are not the persons who will be selected for the new employment." Consequently, these displaced persons must face problems like "retraining, earlier retirement, the necessity to move to another city and many others."

Other subjects covered include metropolitan government, zoning, and small-town planning problems.

Summary of Housing Act of 1956

DETAILED SUMMARY OF THE HOUSING ACT OF 1956, PUBLIC LAW *1020—Housing and Home Finance Agency, Office of the Administrator, Washington* 25, *D. C.* 1956. 17 *pp.*

Municipal and local redevelopment officials will find this a handy booklet for information about Public Law 1020. Provisions of the new Housing Act are summarized under descriptive titles.

Population and Economic Trends in Alexandria, Va.

A LOOK AT OUR CITY: ALEXANDRIA, VA.—*Report No. 1 of The Land Use and Economic Base Survey. Prepared for The Council and Planning Commission by the City Planning Department. Alexandria, Va.* 1956. 118 *pp.* $2. *Available from the Office of City Planning, Room* 205, *City Hall.*

Alexandria, Va., is a fast-growing community in the Washington, D. C., Metropolitan Region by reason of the influx of federal employees. This report, issued with a view to long-range improvement and economic planning, is based on a census covering 96% of the business establishments and 86% of the population. It contains information on population breakdowns, employment distribution, incomes, retail sales, and general characteristics of the census areas.

Niagara Falls Development Plans

NIAGARA POWER PARK AND ARTERIAL DEVELOPMENT—*Power of the State of New York,* 270 *Broadway, New York* 7, *New York.* 1956. 20 *pp.*

This pictorial report describes Niagara Falls' development potentialities in recreation, transportation, and power. Besides the power program now under way, the New York State Power Authority has two other major programs for the area: (1) a regional park system on the Niagara River, and (2) a new international bridge and approaches to link up with the New York State Thruway when completed and future new highways to facilitate traffic to and from the border.

Good Layman's Explanation of Neighborhood Conservation

WHAT IS NEIGHBORHOOD CONSERVATION?—*Neighborhood Conservation Information Bulletin prepared by The Detroit City Plan Commission for the Detroit Committee For Neighborhood Conservation And Improved Housing, Detroit, Mich.* 1956. 10 *pp.*

This information bulletin tells the average Detroit citizen in simple terms the meaning of neighborhood conservation. It provides a list of simple questions to help the reader evaluate his home and neighborhood and outlines the different form of aids offered by the city and the federal government.

New Publication Opposes Discrimination in Housing

TRENDS IN HOUSING—*Vol. 1, No. 1, August* 1956. *Published bimonthly by the National Committee Against Discrimination In Housing,* 35 *West* 32*nd Street, New York* 1, *N. Y.* 8 *pp.* $2 *a year;* $1 *for block subscriptions covering* 10 *or more.*

Trends In Housing is a new publication of the National Committee Against Discrimination In Housing and has as its purpose the presentation of factual, objective accounts of events concerning the problem of discrimination in housing. Its features include reports on recent developments in minority housing in different cities, legal actions and legislative news concerning discrimination practices, and recent publications dealing with discrimination.

How Cities Can Care for Chronically Ill Persons

CARE OF THE LONG-TERM PATIENT—*Chronic Illness in the United States, Volume II. Prepared by the Commission on Chronic Illness. A Commonwealth Fund Book, Harvard University Press, Cambridge* 38, *Mass.* 1956. 606 *pp.* $3.50.

Municipal welfare officials will also be interested in this volume which deals with the general problem of chronic illness and methods of treating the problem. The book describes the characteristics of the long-term patient, how he can be cared for at home and in institutions, the kinds of rehabilitation necessary for such patients, and the kinds of personnel required in caring for these people. The book also describes the programs for home and institutional care that can be coordinated and integrated, the kinds of research needed for planning and administering programs for care of the long-term patient, and the types of financing needed.

This book is the second of the series of four publications being prepared dealing comprehensively with chronic illness in the United States. Other volumes to appear will deal with the problem of chronic illness in the rural area and chronic illness in a large city.

Other Reports Received

Annual Reports

LOCKPORT, LA.—1955-1956 Annual Report of the Mayor.

LOS ANGELES, CALIF.—Annual Report for the fiscal year ending June 30, 1956.

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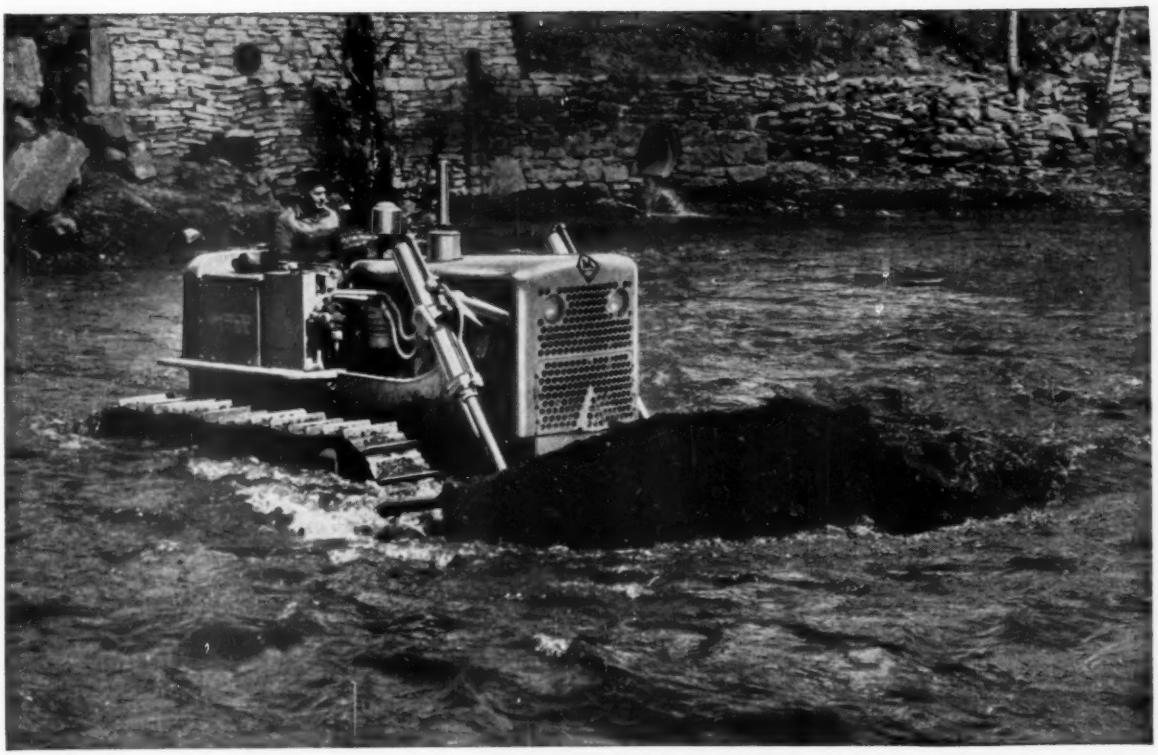

Restoring river bed after heavy flood requires track-deep operation in water and silt

Positive Seals in Allis-Chalmers HD-11B tractor effectively keep out damaging dirt and water

Considerable work was required in Scranton, Pa., recently to restore the Lackawanna River bed and banks after a disastrous flood had caused waters to rise 15 to 20 feet above normal. Channels had to be cleared, creeks widened, dikes built on river banks and, in some places, the river even had to be changed back to its original course.

Restoration work was carried on by Sweeney Brothers, Scranton contractors, under the direction of the Pennsylvania Department of Forests and Waters. Key machine on one phase of the project, an Allis-Chalmers HD-11 tractor-bulldozer, often worked track-deep in water and silt while clearing channels of mud and wreckage. The dozer also maintained roads for the fleet of seven trucks hauling material from the river.

The HD-11B proved to be an ideal machine for this job, according to Thomas J. Collins, Sweeney Brothers president. "This is our first piece of Allis-Chalmers equipment and I'm happy with it. The unit has been subjected to very tough conditions and has stood up well. Considerable saving has been made because Allis-Chalmers 1,000-hour lubrication seals keep dirt and water out of truck wheels, rollers and idlers."

The spring-loaded *Positive Seals* that permit 1,000-hour lubrication on truck wheels, idlers and support rollers are only one of the many outstanding features of Allis-Chalmers tractors.

HD-11B
94 belt hp • 24,800 lb (approx.) as shown

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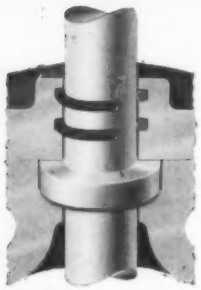

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Provide excellent seal, prevent binding of stem and result in very easy valve operation. KENNEDY O-Rings are located above collar, permit repacking under pressure. Optional on KENNEDY non-rising stem A.W.W.A. valves.

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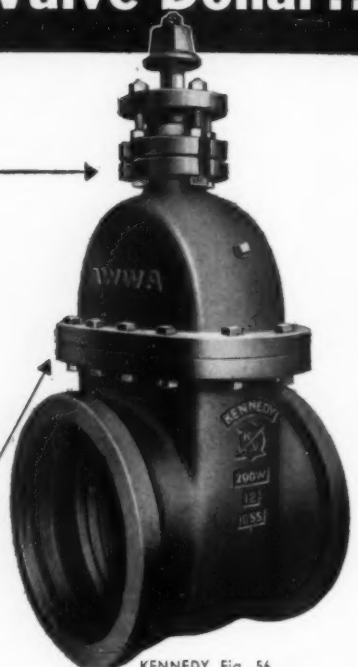
Rugged design and construction features iron that is 50% stronger than ordinary cast iron to keep KENNEDY Valves doing a better job over a longer, more dependable operating life.



KENNEDY Fig. 56 A. W. W. A. Standard Iron-Body Double-Disc Gate Valve, with Bell Ends.

KENNEDY manufactures a complete line of water works valves. Sizes range from 2" to 48" including non-rising stem and outside-screw-and-yoke valves. These valves feature the hook-and-wedge type disc mechanism for easier, better and more positive valve operation. A wide variety of pipe connections are available.

For maximum service life, for the greatest value for your valve dollar, specify KENNEDY valves and fire hydrants. Remember, KENNEDY means dependability in valves, fire hydrants and accessories.

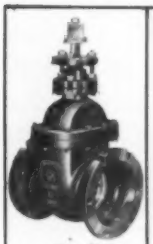


Fig. 571

Fig. 561

Fig. 566

Fig. 566G

Fig. 566FTR

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RICHMOND, VA.—1955-1956 Annual Report.

QUINCY, MASS.—1955 Annual Report.

WEST MILWAUKEE, WIS.—1906-1956 Golden Year Anniversary Publication.

Finance & Taxation

AMBLER, PA.—Proposed Bond Issue of Ambler Joint High School Authority, Ambler, Pa.

COLUMBIA, MO.—Annual Budget for the fiscal year ending September 30, 1957.

HONOLULU, HAWAII—1955 Annual Report for the City and County of Honolulu. Prepared by the Office of the Controller.

MILWAUKEE, WIS.—1957 Annual Budget. Prepared by Office of the Comptroller.

VIRGINIA—Bonded Debt of Virginia Towns as of June 30, 1956. Prepared by the League of Virginia Municipalities, Richmond, Va. 75 cents.

Miscellaneous

MICHIGAN—A "Buy-Michigan" Purchasing Policy. By Leiv N. Rydland, Bureau of Government, Institute of Public Administration, University of Michigan. 1956. 59 pp.

Parks and Playgrounds

SEATTLE, WASH.—Our Town and What It Offers. Prepared by the Department of Parks.

Planning, Housing and Zoning

CANADA—Housing and Urban Growth In Canada. A brief to the Royal Commission on Canada's Economic Prospects by the Central Mortgage and Housing Corporation, Ottawa, Canada.

Public Health

NEWARK, N. J.—1955 Health Report. Prepared by the Division of Health.

ALBUQUERQUE, NEW MEXICO—Your Albuquerque Health Department.

NEWARK, N. J.—1955 Health Report. Prepared by the Division of Health.

Public Works

RALEIGH, N. C.—1955-1956 Annual Report. Prepared by the Department of Public Works.

Refuse

ARION, IND.—1955 Operation Report. Prepared by the City Sanitation Department.

Street Construction & Maintenance

TORONTO, CANADA—1955 Annual Report. Prepared by the Commissioner of the Department of Street Cleaning.

Traffic

LEVELAND, OHIO—Of Time and Traffic and How to Move About More Easily in Greater Cleveland. Prepared by The Citizens League of Cleveland and Cuyahoga County, Cleveland, Ohio.

Water

PORTSMOUTH, VA.—1955-1956 Annual Report. Prepared by the Portsmouth Water Department.

TAUNTON, MASS.—1955 Annual Report. Prepared by the Board of Water Commissioners.

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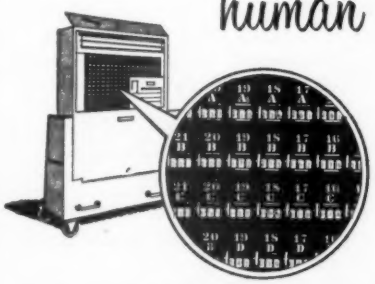
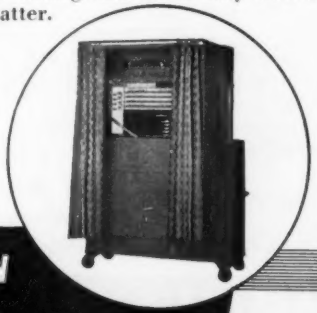


Each candidate's total is accurately and permanently recorded on own individual counter.

T. H. O'Donoghue, City Clerk, writes:

Our recount in the City of Ferndale was completed in less than one day's time and as anticipated there was no discrepancy or change of any kind in the recount result, as indicated on the 26 voting machines in use in our City.

Recounts are not a desirable or pleasant thing for any City Clerk or Election Commission, but with voting machines they are a very simple matter.



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Offers Federal-State-Local Program for Shoreline Development

COMMERCIAL or private development has preempted almost every attractive seashore area on the Atlantic and Gulf coasts, and only a fraction of the long shoreline is available for public recreation use. This was the major finding in a general 18-month shoreline study, recently completed by the National Park Service.

The study, financed by donated funds, covered nearly 3,700 miles of shoreline from Calais, Maine, to Brownsville, Texas, and included 18 states. Its purpose was to determine the remaining opportunities to preserve unspoiled natural seashore areas for public recreation purposes.

Of the 3,700 miles of shoreline on the Atlantic and Gulf coasts only 54 undeveloped areas totaling 640 miles, or 17% of the shoreline, offer opportunities for conservation for recreation use. The survey identified 126 undeveloped beach sites, but 72 were eliminated because they lacked sufficient recreation potentialities.

Because of their location and recreational values, the 54 undeveloped areas recorded in the survey are believed to be of interest to local, state, and federal agencies as possible public seashores. States are already negotiating for portions of eight of these areas.

The 54 areas range in size from 1 mile to 100 miles. Six of the areas and one-third of the total beach mileage are in Texas. Some of the areas are located within three hours' driving time from the centers of greatest population, and all are within one-day travel distance of hundreds of thousands of people. Some 18 of the areas, or 118 miles, lie within the most densely populated section of the eastern seaboard between Massachusetts and Delaware.* As a result of the survey, the National Park Service has called on all governments to take prompt action to acquire the best available sites before they are invaded by private or commercial developments. Its recommendations are:

- **that federal, state, and local agencies should acquire at least 15% of the general shoreline of the Atlantic and Gulf coasts for public recreation purposes. If these governments acquire half of the suitable undeveloped seashore land, they would then have including their existing areas the recommended 15%.**
- **that the acquisition of seashore areas should be based on the distribution of population.**
- **that further land use studies be made of selected important coastal areas, placing emphasis on proper boundaries and long-range planning for the best use of recreation values.**

A summary report of the shoreline study, titled "Our Vanishing Shoreline" has been issued by the National Park Service, U. S. Department of the Interior, Washington 25, D. C.

* A recent Yale University planning survey has suggested that the 600-mile area on the eastern seaboard from Portland, Maine to Norfolk, Va., be designated as a single, linear city containing one-fifth of the nation's population.

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"HydePak units have really worked out here at Jacksonville Beach, especially since these units are subject to salt air and spray. These units are used for actual pickup of refuse on the beach. The city has had very low maintenance, even under these conditions."

"The feature we like most is that loading can be done and packing controls operated from both sides of the unit while making collections in the alleys that traverse most blocks of the city. There is nothing we dislike about the HydePak."

In city after city, competitive tests prove HydePak makes more pickups faster, while original cost is lowest. And with HIGH COMPACTION, it can carry the most weight per cubic yard of capacity, making fewer trips to the dump yard.

Maintenance is the most economical because there are fewer working parts in the automatic hydraulic system.

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You park your car in the office in Oklahoma City's Petroleum Club building, to be completed this year. This 15-story office building provides 500 parking spaces on 13 floors adjacent to office quarters and suggests similar treatment for apartment buildings of the near future.

Couch Drive front where cars exit.

ONE of the more exciting parking facilities yet built is the Petroleum Club Building in Oklahoma City. It is a combination 15-story office building and parking garage.

Petroleum Club occupies the fifteenth floor (100 feet by 150 feet). Office space is provided from the second floor level to the floor under the Club, for a total of 32,000 square feet. In addition, 8,000 square feet of penthouse patio offices are available on the sixteenth floor over the Petroleum Club.

The building faces on two streets, 150 feet on each, as illustrated by the photographs. Parking entrance is on 2nd Street; exit is on Couch Drive. The Bowser parking system operates on 13 floors. Capacity is 500 cars. Architects are Bailey, Bozalis and Associates, of Oklahoma City, Okla.

LOWEST COST PIPE INSTALLATION...

2" to 24" BORES - Up to 250' long.

Send COUPON Today!

Hydrauger Corp., Ltd.
681 Market St., San Francisco, Calif.
Please send, without obligation to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME _____
ADDRESS _____
CITY _____ STATE _____

HYDRAUGER* Reg. U. S. Pat. Office

UNDER STREETS
UNDER FREEWAYS
UNDER GARDENS
UNDER PAVEMENT

OPEN HOLE

HY-25A

AVOIDS EXCESSIVE TRENCHING

Hydrauger bored holes for pipe installation invariably reduce costs 80% to 90% by eliminating trenching and back-filling to say nothing of man-hour labor savings and safety to highway traffic.

*Earth Boring Tool

HYDRAUGER CORP. Ltd.
681 Market Street
San Francisco, California

TIFA

TODD Insecticidal Fog Applicator

FACTORY MAINTENANCE
WINTERTIME REPAIRS
OVERHAULS

Get ready for next season . . . now TIFA Factory Maintenance ensures you top, trouble-free performance. TODD factory mechanics who built your machines, check, overhaul or completely recondition them. You've made a fine investment to guard the health of your community . . . **let these experts protect that investment!**

For full details on Factory Mechanic Service, contact either Brooklyn or Houston Plant.

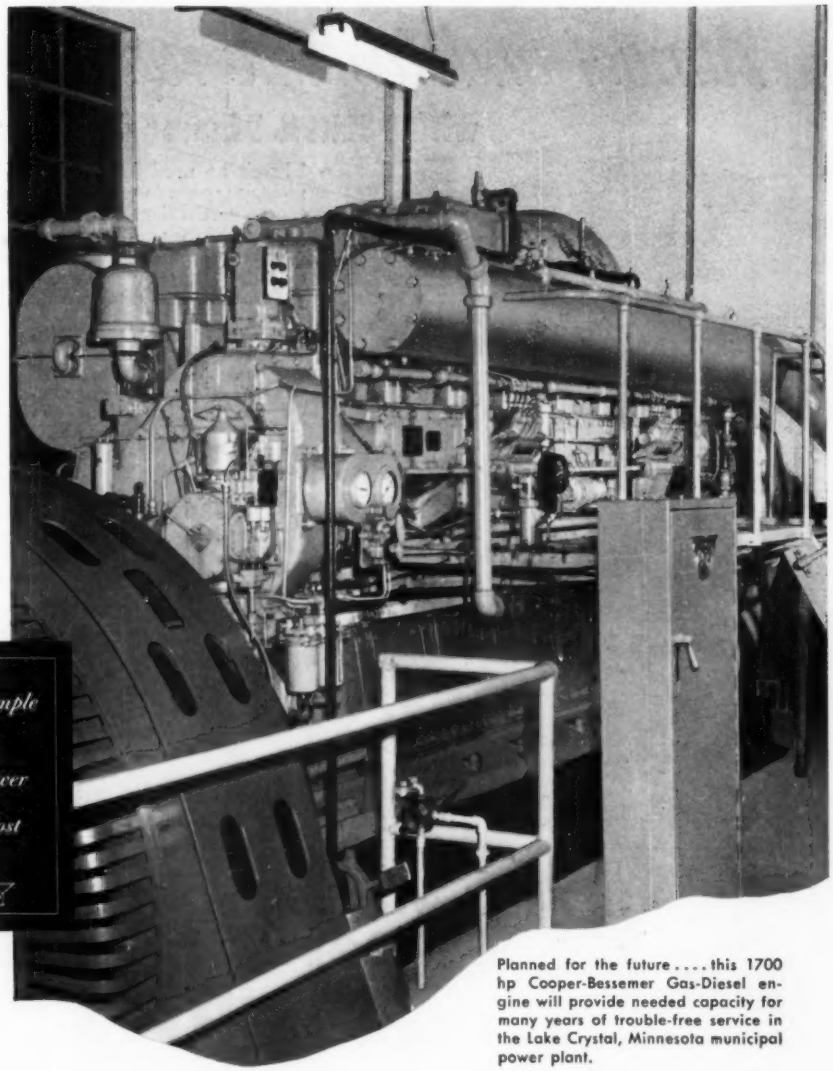
PRODUCTS DIVISION

TODD SHIPYARDS CORPORATION

Headquarters: Columbia and Halleck Sts., Brooklyn 31, N. Y.
Plant: Green's Bayou, Houston 15, Texas

Why this small municipal plant bought extra engine output

Another Example of Efficient Power at Lower Cost



Planned for the future . . . . this 1700 hp Cooper-Bessemer Gas-Diesel engine will provide needed capacity for many years of trouble-free service in the Lake Crystal, Minnesota municipal power plant.

● Lake Crystal, Minnesota carefully studied the matter, installed a high output Cooper-Bessemer engine, and they're far from sorry. This small community enjoys substantial savings from a 1200 kw. . . . 1700 hp. . . . 155 bmep Gas-Diesel engine.

The engine, a supercharged Cooper-Bessemer JS, boasts an enviable "around the clock" operational record with excellent fuel economy maintained under heavy *or* light loads. With the installation of this new unit, there's no further need for riding an engine at costly, inefficient loading in anticipation of sudden heavy increases.

Although oversized for present needs, this 8 cylinder Cooper-Bessemer will more than justify its original cost. Dependable, economical power will be available for many future years. And as Lake Crystal power demands grow . . . this JS will easily handle the increased load. No need for costly plant expansions. No new engines to buy.

Impressive month by month operating cost records of Lake Crystal municipal are available upon request. Write The Cooper-Bessemer Corporation, Mount Vernon, Ohio.

MOUNT VERNON, OHIO

COOPER-BESSEMER

GROVE CITY, PENNA.

New York City • Seattle, Wash. • Chicago, Ill. • Houston, Dallas, Greggton, Pampa and Odessa, Texas • Washington, D. C. Shreveport, La. • San Francisco, Los Angeles, Calif. • St. Louis, Mo. • Gloucester, Mass. • New Orleans, La. • Tulsa, Okla. Caracas, Venezuela • COOPER-BESSEMER OF CANADA, LTD., Edmonton and Calgary, Alberta, Canada.

DIESELS • GAS ENGINES • GAS-DIESELS • ENGINE-DRIVEN AND MOTOR-DRIVEN COMPRESSORS

Almost undetectable repairs in concrete...

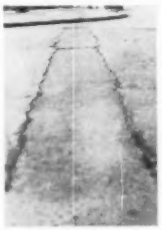
with FELKER Diamond Blades and Machines

There's no need for rough broken edges, irregular patches, when making repairs in existing concrete. The modern method is pre-cutting to partial depth with Felker Segmented Diamond Blades before you break! Jobs go faster, are neater and savings offset cutting costs!

Felker supplies a wide range of diamond blade sizes, in types for cutting both green and cured concrete with maximum efficiency. *Ask for price list and recommendations for lowest cost per cut!*

FELKER CONCRETE CUTTING MACHINES—Made in sizes from 7½ h.p. through 36 h.p. for all jobs from patchwork to production cutting of control joints in highways, etc. Catalogs available. Write, specifying your requirements.

FELKER MANUFACTURING CO.
Torrance, California



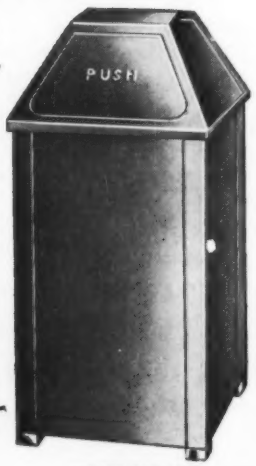
A typical patch resulting from broken edges; poorly bonded, ragged and unsightly.

Vertical edges of cuts improve neatness, won't spall. Concrete fill, rather than asphalt, is unnoticeable.

World's Largest and Oldest Manufacturer of Diamond Abrasive Cut-Off Blades and Machines.

FELKER DI-MET SINCE 1924

New York's
International Airport
at Idlewild
relies on UNITED
Waste Receptacles!



...world's largest manufacturer of metal waste receptacles

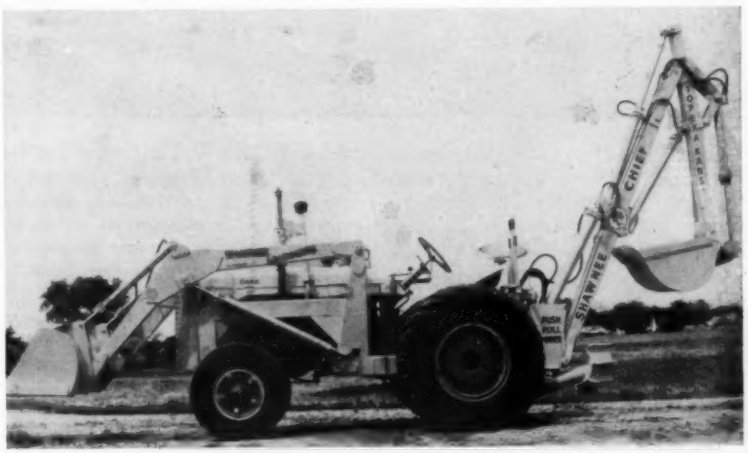
UNITED METAL CABINET CORPORATION
14th & Laurel Sts., Pottsville, Pa.
West Coast Distributor: SHORE-CALNEVAR, INC., 2881 East Pico Blvd., Los Angeles, Calif.

WRITE FOR FREE DESCRIPTIVE LITERATURE

Purchasing News

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

New Backhoe Digs 14 Feet Deep



Only minutes are needed to position tractor and backhoe for digging operations.

A new backhoe that will dig up to 14 feet below ground surface is offered by the SHAWNEE MFG. CO., INC., 1947U, N. TOPEKA BLVD., TOPEKA, KANS. Called the Shawnee "Chief" Model No. D90, it features new "Push-Pull Power." This exceptional power is achieved by synchronizing the action of a push cylinder at one end of the bucket boom axis with another pull cylinder midway between the axis and the bucket. Utilizing the two synchronized cylinders relieves strain on the axis and increases digging pressure.

In addition to increased digging depth and greater digging pressure, the new "Chief" improves working efficiency by providing 120° sectors of operation. The operator can switch the boom to either of the two forward sectors without moving from his seat. Hydraulically-controlled "feet" stabilizers quickly align the tractor for plumb digging when working sideways on a hill, or with one wheel on a curbing.

Model No. D90 is fully described in literature from the Shawnee Mfg. Co. Write the company directly, or you may use the Post Card on the insert following Page 52. Circle No. 914.

New Look in Fire Engines

Visitors at the International Association of Fire Chiefs' Convention to be held at Miami, Fla., this month, will be treated to a showing of the "new look" in FWD Special and DeLuxe Series pumper fire engines. These units have been redesigned with an increased use of chrome and stainless steel trim and new grille and hood styling. Featured at the convention will be a Special 750 model with a dual control pump which can be operated either electrically or manually.

The new streamlined appearance of FWD's pumpers includes chrome bumper, grille and headlight trim; new front and hood side-panel design; and a stainless steel gauge panel with chrome trim on all openings. These design features are available on the company's Special 500, 750 and 1,000 Series, as well as its DeLuxe 500, 700, 1,000 and 1,200 Series pumpers.

For further information on all FWD fire apparatus, write directly to the FOUR WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS., or you may use the Post Card on the insert following Page 52. Circle No. 928.

Motorola Shifts West Coast Headquarters

Donald F. Brickley, vice-president and Western Divisional sales manager of Motorola Communications & Electronics, Inc., announces the transfer of the company's West Coast headquarters from San Mateo, Calif., to a new and larger building at Burlingame, Calif. Main offices of Motorola are located at 4501 W. Augusta Blvd., Chicago 51, Ill.

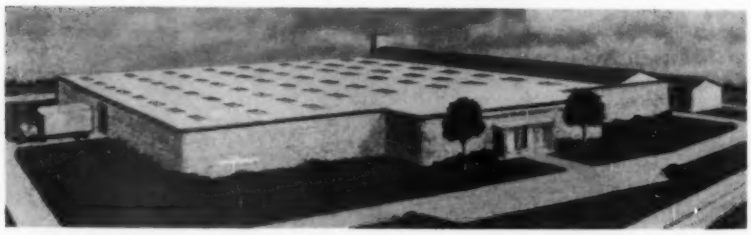
Aluminum Reigns on Florida Turnpike

The Miami - to - Jacksonville Florida Turnpike, the first leg of which is scheduled for completion early next year, will use more aluminum per mile than any other highway lighting project in history, according to the Reynolds Metals Co., 2500 S. Third St., Louisville, Ky. Now being installed are aluminum signs and sign posts, aluminum lighting standards, and aluminum bridge railings. The first leg of the turnpike runs from the Golden Glades Interchange near Miami, north to Fort Pierce.

According to Sam P. Turnbull, chief engineer for the Florida State Turnpike Authority, "we're using aluminum because we believe it's the best material for the job. It will resist the corrosive elements of our atmosphere, greatly reducing our maintenance problem. Also, we find that aluminum, because of its light weight, is easier to install."

Aluminum for the Florida Turnpike is being supplied by the Reynolds Metals Co. The lighting standards are a product of Pfaff & Kendall, 84 Foundry St., Newark 5, N. J., and the Traffic and Street Sign Co., 88 Foundry St., Newark, made the signs. Major components of the signs, the sign posts, the lighting standards and the bridge railings are all manufactured by the extrusion process. Reynolds supplies the basic extrusions, and various other firms handle further fabrication.

Builds New Home for Snappin' Turtle



Completion of a new 78,000-square-foot plant by the McDonough Power Equipment Co., Inc., is announced by William R. Smith, president of the firm. The new plant, located in McDonough, Ga., will house the Snapper line of rotary mowers, including the well-known Snappin' Turtle, made by the company's Power Implement Division.

The Snappin' Turtle will be made in a wide range of models starting at an 18-inch cut, and featuring riding mowers designed to cut 19-, 25-, 30- and 36-inch swaths. The company will also manufacture power cutting Tow-Mowers designed to furnish a gang-swath 100 inches wide.

A separate division of McDonough Power Equipment, Inc., operates in the field of textile equipment. Officers of the firm include Tony Malizia, vice-president and sales manager of the Power Implement Division; John L. Sinback, vice-president and general manager of the Machine & Foundry Division; E. E. Spratlin, vice-president and treasurer; Inman Brandon, secretary; Carson Steele, assistant treasurer and assistant secretary; and E. L. Humphreys, chairman of the board of directors.

Latest About Plastix

During World War II when a substitute for traffic paint was needed, Prismo chemists developed "Plastix." Since then, not only has it won nationwide popularity, but it is said to be the only extruded thermoplastic material available in the United States that is completely reflectorized. The glass spheres are uniformly impregnated throughout the material which has a life wear of three to five years.

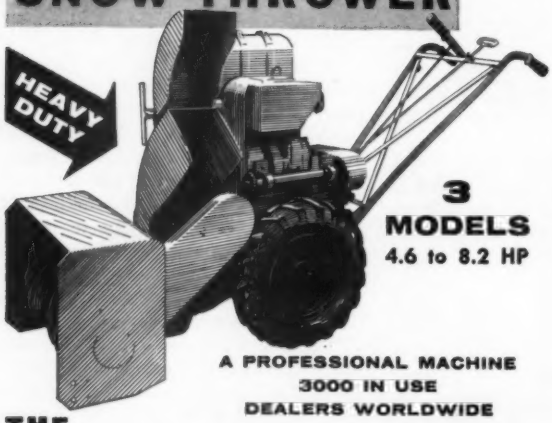
The Cities of Baltimore, Washington, D. C., and New Orleans have made applications of "Plastix" in their entire downtown business districts. Many other municipalities are finding much use for this material for crosswalks, lane lines and parking stalls.

For a list of customers and a copy of the new Plastix catalog which outlines the latest improvements, write PRISMO SAFETY CORP., HUNTINGDON, PA., or you may use the Post Card on the insert following Page 52. Circle No. 917.

Low-Cost Rescue Body

A versatile new body that can be used for all types of rescue work, including water rescue, automobile accidents, heart cases, and transporting rescue squads to

PAYS FOR ITSELF
IN ONE BAD WINTER
MAXIM
SNOW THROWER

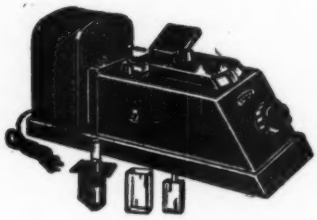


A PROFESSIONAL MACHINE
3000 IN USE
DEALERS WORLDWIDE

THE
MAXIM
SILENCER COMPANY
85 Homestead Ave., Hartford, Conn.

SEND FOR BULLETIN

KLETT SUMMERSON
ELECTRIC PHOTOMETER
Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.
179 East 87th Street New York, N. Y.

the scenes of emergencies is recommended for use by police and fire departments. The basic body unit has a tapered rear and chrome grab rails. It features a special rear step of diamond tred-plate steel.

Easily adapted for any standard chassis, the units are available in sizes rang-

ing from ½ to 1½ tons with body sizes from 6½ feet to 11 feet long. Vertical compartments store portable generators, pumps, Indian fire pumps, Scott Air Paks, and smoke ejectors. The horizontal compartments can be rigged to hold chain saws, Porto-Power jacks and floodlights.

For additional information and specifications, write READING BODY WORKS, INC., READING, PA., or you may use the Post Card on the insert following Page 52. Circle No. 913.

Wayne Power Sweepers Delivered to Israel

Five new Wayne Model 2-450 power sweepers are providing Tel Aviv, Israel, with the Middle East's most modern equipment for street maintenance, according to the Wayne Mfg. Co., 1275 E. Lexington Ave., Pomona, Calif. This is the second multiple shipment of Wayne sweepers to a foreign country since midyear. Four were shipped to Cali, Colombia, last June.

Reflectorized STOP Signs

White on red STOP signs reflectorized by a new, low-cost process are available from the CATAPHOTE CORP., TOLEDO 10, OHIO. The new coating process utilizes high index reflective beads with wide angularity, producing an effective sign that is dirt-proof and weather resistant. The paint-smooth surface shows bright red by day, and is unusually brilliant when reflected at night.

The new STOP signs are available in standard 24- x 24-inch or 30- x 30-inch sizes. For complete information, write the company directly, or you may use the Post Card on the insert following Page 52. Circle No. 925.

Traffic-Safety UP; Costs DOWN

TARCO *"Scotchman" for* Ice and Snow Control

You can salt-treat your streets and highways **8 times Faster** and **50% Cheaper** with a stainless steel "Scotchman". Your choice of 3 models to use on any dump truck or pick-up . . . no complicated hook-ups. One model gives you One Man Cab Control.

See the NEW and EXCLUSIVE feature . . . **Cartridge Type Power Unit:** engine, impeller, and electric starter is a single compact unit . . . removed or installed in 5 minutes.

More snow control officials use the "Scotchman" for chemical spreading than any other kind! Reasons: It's **Faster.** It's more **Convenient.** It **pays its way** in savings of **Time, Labor** and **Materials.** Ask your dealer or write for details.

Nothing Saves Like a "Scotchman"

TARRANT
MANUFACTURING COMPANY
27 Jumel Pl., Saratoga Springs, N. Y.

M & M BRUSH CHIPPERS

convert 3000 lbs. tree trimmings into small chips in 1 hour

A portable, highly efficient unit with its own power plant, the M & M Brush Chipper converts a truckload of useless brush into a small pile of chips in 21 minutes. The chips make excellent fuel, and can also be used for livestock bedding or mulch. The M & M Brush Grinder will handle branches (green or dry) up to six inches in diameter, and will deposit them in a truck or container or in a neat pile on the ground. The M & M Brush Grinder has a standard trailer hitch for towing behind car, jeep, or truck, and a retractable wheeled jack for levelling when detached from towing vehicle. Moving parts are fully enclosed for safety, and the whole unit is ruggedly constructed for long, hard service. Write today for illustrated folder.

MITTS & MERRILL 1003 South Water Street • SAGINAW, MICHIGAN
94

One's Enough!

Winter accidents so often compounded by lack of advance warning can be stopped with the new SAF-T-PAK emergency traffic control kit. It sets up in seconds. Flasher lights, reflective flags and warning signs demand attention of motorists approaching an accident scene.

Standing 46½" high when opened, the SAF-T-PAK folds up to full size from a sturdy, compact, suitcase size. It stands ruggedly because it was engineered to do a real, authoritative job of traffic control under all conditions. Folded down, it easily stores in rear seat or trunk of car.

In cities with one man patrol cars, SAF-T-PAK kits are extremely helpful in the critical moments just after an accident happens. Sign messages are interchangeable; we offer a large number of wording options to cover all emergency and special traffic problems.

So get ready for winter traffic; give your police force and the public, too, this extra assistance and protection. Write today for our new SAF-T-PAK brochure and name of nearest sales representative.

FOR YOUR STANDARD TRAFFIC AND STREET SIGNS...LYLE, TOO

LYLE traffic and street signs are *"up-to-the-minute"* in design and proved materials which conform to latest U.S. Standards. Completely modern sign manufacturing methods guarantee unusual longevity and full-time service for your community.

Our 40-page Sign Catalog B-55 is yours on request.

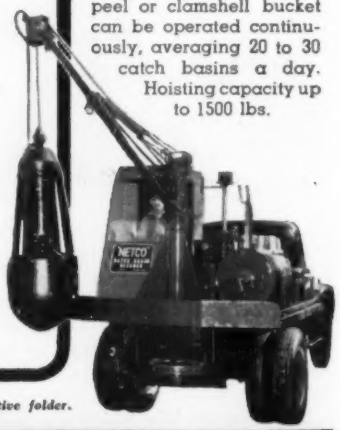
LYLE SIGNS, INC.

2722 UNIVERSITY AVENUE SOUTHEAST
MINNEAPOLIS 14, MINNESOTA

New NETCO Catch Basin Cleaners are Working Throughout the Land in These Cities

Chicago, Illinois
Indianapolis, Ind.
Cumberland, Md.
Boston, Mass.
Fitchburg, Mass.
Lowell, Mass.
Grand Rapids, Mich.
Trenton, N. J.
Westfield, N. J.
Binghamton, N. Y.
City of N. Y., N. Y.
Utica, N. Y.
Parma, Ohio
Philadelphia, Pa.
Pa. Turnpike Comm.
Hamilton, Toronto Canada

Easily mounted on any short wheel base truck with 8 ft. in back of the cab, the NETCO with orange peel or clamshell bucket can be operated continuously, averaging 20 to 30 catch basins a day. Hoisting capacity up to 1500 lbs.



Send for our 6 page descriptive folder.

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

Statement Required by the act of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946 (Title 39, United States Code, Section 233) showing the Ownership, Management, and Circulation of

THE AMERICAN CITY published monthly at New York, N. Y., for Oct. 1, 1956.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Edgar J. Buttenheim, 470 Fourth Avenue, New York 16, N. Y.

Editor, William S. Foster, 470 4th Ave., New York 16, N. Y.

Managing Editor, None.

Business Manager, Edgar M. Buttenheim, 470 Fourth Avenue, New York 16, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given.)

AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Ave., New York 16, N. Y.

Stockholders:
Edgar J. Buttenheim, 470 Fourth Ave., New York 16, N. Y.
Donald V. Buttenheim, 470 Fourth Ave., New York 16, N. Y.
Edgar M. Buttenheim, 470 Fourth Ave., New York 16, N. Y.
Barbara B. Hicks, Warwick, New York.
Constance B. Swain, Pleasantville, New York.
Martha E. Buttenheim, Ashland, New Hampshire.
Curtis R. Buttenheim, Lookout Mountain, Tennessee.

3. The known bondholders, mortgagees, and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

EDGAR J. BUTTENHEIM
Publisher

Sworn to and subscribed before me this 26th day of September, 1956
New York County Clerk's No. 41-9493500
(My commission expires March 30, 1958)

EDWIN WAGNER
Notary Public
New York Co., N. Y.

New, Self-Closing Waste Receptacles

City streets may be kept looking cleaner and more attractive by installing these new, self-closing waste receptacles at corners and other strategic locations. The Solar-Superior Jet swings

open from any direction. It has upper and lower reinforcing bands of stainless steel, an outer shell of white baked finish, and stainless steel top and legs. The heavy galvanized inner container is constructed with a sturdy handle.

The new Solar-Superior Jet is now being made by the SUPERIOR METALWARE DIVISION, JOHN WOOD CO., 509 FRONT AVE., ST. PAUL, MINN. For full details, write the company directly, or you may use the Post Card on the insert following Page 52. Circle No. 916.

New Ice-Control Units Get Premiere Showing

New model improvements in ice-control equipment were unveiled for the first time at a recent Baughman Sales Convention in Jerseyville, Ill. Featured was the popular driver-controlled Spread-Mobile, now available with a stainless steel reciprocating cross feeder. This new design eliminates the need for chains and belts, and ends "stretch" and "freeze-up" problems. Spreading width, volume, starting, stopping and safety baffle are all cab controlled.

Another well-known spreader, the Sand-and-Cinder Model K5-SC, is now offered in a choice of four drives: P.T.O. with either mechanical or hydraulic operation; and auxiliary engine with either mechanical or hydraulic operation. All drives are cab-controlled.

Full information on the improved Spread-Mobile and the Model K5-SC may be obtained from the BAUGHMAN MFG. CO., 150 SHIPMAN RD., JERSEYVILLE, ILL. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 920.

New Armco Plant in Atlanta, Ga.

Plans to construct a new $500,000 steel fabricating plant in Atlanta, Ga., are announced by S. R. Ives, president of Armco Drainage & Metal Products, Inc., 5256 Curtis St., Middletown, Ohio. Armco Drainage is a subsidiary of the Armco Steel Corp.

The new plant will produce storage tanks, corrugated metal pipe and pipe-arch in a wide range of sizes, drainage pipe, and miscellaneous construction products. It will also have facilities for converting corrugated metal pipe to the company's new Smooth-Flo sewer pipe, and for coating and paving pipe with asphalt. The plant will serve Armco customers in Georgia, Alabama, Florida, and North and South Carolina.

Warren S. Mann, vice-president of Armco Drainage, and manager of the company's Dixie Division, will direct operations at the Atlanta plant, and J. A. Callaway will serve as superintendent. Production supervisor of the Dixie Division is W. W. Wilkinson.

Brockway to Operate as Mack Trucks' Division

Acquisition of the manufacturing, service and sales facilities of the Brockway Motor Co., Inc., is announced by P. O. Peterson, president of Mack Trucks, Inc., 1355 West Front St., Plainfield, N. J. The Brockway organization, located at Cortland, N. Y., will operate as the Brockway Motor Division of Mack Trucks.

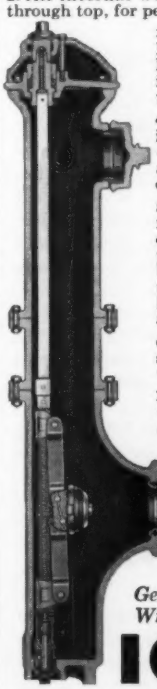
In hydrants, too, it's important to have

Unobstructed flow

SINCE 1909

Look at a cutaway view before you buy any hydrant! You'll be surprised how few provide an absolutely unobstructed waterway! And *no one* but Iowa offers you *all* this and much more—

1. Provides full and unobstructed waterway for maximum flow from main to nozzle.
2. All internal working parts removable through top, for periodic inspection.



3. Superintendents find Iowa hydrants easy to keep in "tip-top" operating condition—no special tools required.
4. Main valve holds tight in closed position so that—should hydrant be damaged—no loss of water, or flooding, will occur.
5. Two-piece operating nut eliminates binding or distortion of working parts (sometimes caused by expansion and contraction) — makes Iowa hydrants easy to open and close at all times.
6. Complete drainage by sure acting drain, prevents freezing.
7. Fully bronze mounted throughout—meet all requirements of A.W.W.A. —have proved their ruggedness and reliability to waterworks men everywhere.
8. Available with any type of connection.

Get ALL the facts! Write

IOWA

VALVE COMPANY

Oskaloosa, Iowa

A subsidiary of James B. Clow & Sons

Small Water Cooler Holds Five Gallons

Measuring only 18 inches wide and 24 inches deep, the new Model Cafe-5 water cooler has a storage capacity for five gallons, and is ideal for use wherever space is at a premium. Under

standard rating conditions, the cooler has a recovery rate of 12½ gallons of 50° drinking water per hour. It can be used as a counter cooler or, if desired, can be installed in a separate location as a complete water station.

The new Cafe-5 will be furnished with a stainless steel top and glass rack, with a cabinet in either hammertone gray finish or stainless steel. The chrome-plated, glass-filler faucet, Haws Model 427, is a push-back, prong-pedestal type unit. The cooling system of the Cafe-5 is hermetically sealed, and the cooler is powered by a ⅓-hp motor with 115-volt, 60-cycle, A.C., single electrical rating.

A more detailed description of the Cafe-5 may be obtained from the HAWS DRINKING FAUCET CO., 4TH AND PAGE STS., BERKELEY 10, CALIF. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 918.

New, Easy-to-Read Street Sign

New, easy-to-read street signs—6,000 of them—are guiding Chicago motorists around their city. Erected by the Chicago Park District, the new signs are actually extruded aluminum blanks covered with Scotchlite and a semi-transparent brown lacquer Metal for the signs was supplied by the ALUMINUM COMPANY OF AMERICA, 1501 ALCOA BLDG., PITTSBURGH 19, PA.

The Park District applied silver-colored Scotchlite, made by the Minnesota Mining and Mfg. Co., to each aluminum blank. The semi-transparent lacquer was silk screened over the Scotchlite to form the background for the name lettering. The lacquer provided a sign that was essentially uniform in appearance both day and night.

The aluminum blanks are 6¾ inches high and 28 or 36 inches long, depending on the length of the street name. The Scotchlite letters are 4½ inches high for the name, and 2½ inches high for direction and roadway designations.

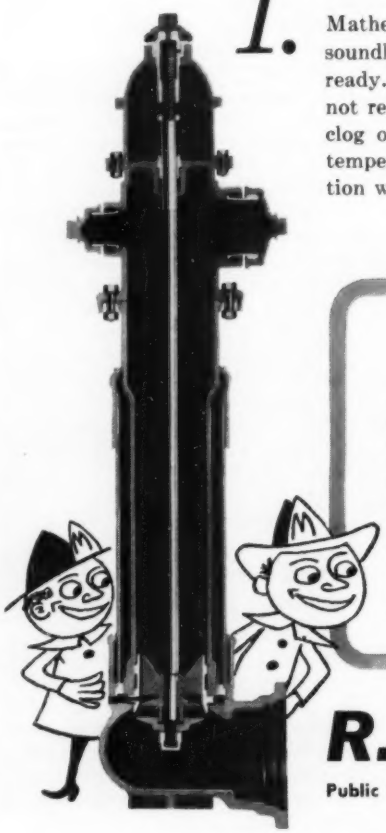
Additional information on these lightweight, long-lasting street markers may be obtained directly from the Aluminum Company of America, or you may use the Post Card on the insert following Page 52. Circle No. 905.

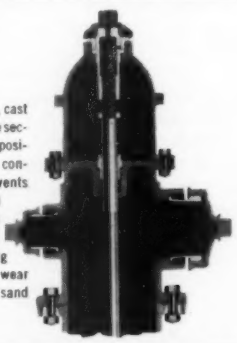
SPECIFY MATHEWS FOR

You need ask two questions

1. **Will they be ready for instant use in an emergency?**

Mathews Hydrants are so simply and soundly constructed that they are always ready. Water, ice and sandy deposits cannot reach key parts to rust or freeze, or clog operation. In any weather and all temperatures, Mathews Hydrants function with a minimum of maintenance.





Stuffing box plate, cast integral with nozzle section, provides a positively leakproof construction. It prevents any water or sand from reaching the operating thread. No rusting, freezing or clogging. No wear on thread through sand abrasion.

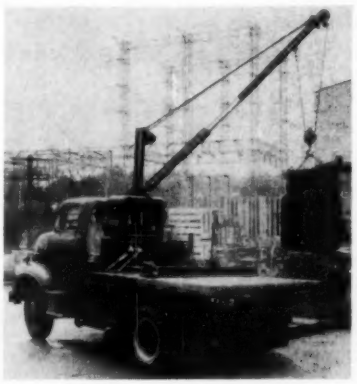
R. D. WOOD

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

New Truck-Mounted Hydraulic Crane

Newest addition to the line of utility bodies and equipment manufactured by the Powers-American Division of the McCabe-Powers Auto Body Co., is the "Load-Master," a truck-mounted hydraulic crane with a rated capacity of 4,000 pounds. The unit is easily installed on any chassis with a cab-to-axle dimension of at least 84 inches, and requires only 20 inches of mounting space behind the truck cab. It is powered by a hydraulic pump, driven by a power take-off installed on the truck transmission.

Easily operated by one man, the "Load-Master" consists of a hydraulic ram anchored to a supporting mast, a hydraulic winch, and hydraulic outriggers. Support cables are extended from the outer end of the ram to the top of the mast, and the fixed length of these cables causes the boom angle of elevation to change as the ram is extended or retracted.



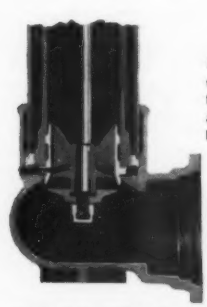
The new "Load-Master" crane is particularly suited for use with the company's Series 300 body which is usually furnished with underfloor compartments, removable retainer boards, and steel skirting panels over wheels. The unit can also be furnished in combination with other standard bodies in the line, or with special equipment designed to fit individual work requirements.

The "Load-Master" hydraulic crane is fully described in *Bulletin No. 207*. For your copy, write POWERS-AMERICAN DIVISION, MCCABE-POWERS AUTO BODY CO., 5900 N. BROADWAY, ST. LOUIS 15, MO., or you may use the Post Card on the insert following Page 52. Circle No. 921.

DEPENDABLE PROTECTION
only
about fire hydrants:

2. Can the hydrant be quickly replaced if broken in a traffic accident?

When you have Mathews Hydrants on the job, neighborhood fire protection can suffer only momentary interruption. A broken Mathews Hydrant can be replaced with a new barrel in less than half an hour, and *without excavating.*



Main valve, true compression type, opens against and closes with water pressure. The higher the pressure, the tighter the valve. When hydrant is broken in traffic accident, there's no leakage with consequent dangerous loss of pressure.

Available for mechanical joint connections

COMPANY

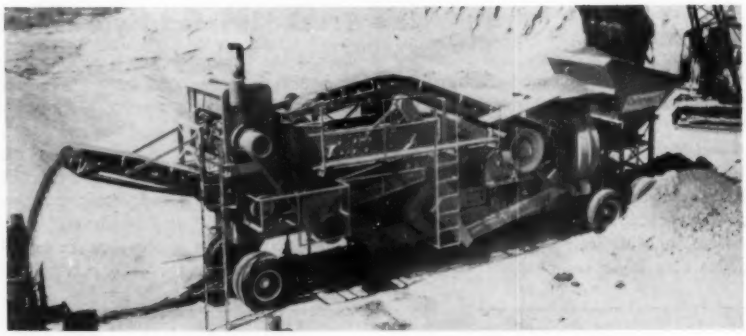
Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Cold-Weather Starting for "Cat" Equipment

Fast starts in below-freezing temperatures are routine with Caterpillar's improved direct electric starting system. These 24-volt systems are now being offered as attachments for Caterpillar No. 12, No. 112 and No. 212 motor graders, and Caterpillar DW15, DW20 and DW21 wheel-type tractors. They include two ether starting aids and the necessary tubing to inject vaporized ether into the air intake manifold. The ether starting aids, used in conjunction with glow plugs, enable fast starts in temperatures as low as 10° F.

For full information on the new 24-volt starting systems, write directly to the CATERPILLAR TRACTOR CO., PEORIA, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 924.

For Municipally Owned Sand and Gravel Pits



A larger screening area is one of the big new features on the redesigned Cedarapids Junior Tandem. A half deck has been added to the horizontal vibrating screen, and the screen width has been increased by six inches over the old model. The larger deck screen increases screening capacity and, in addition, adds flexibility for producing from one to three products simultaneously in sizes ranging from 2-inch road ballast to minus ¼-inch.

With the new Junior Tandem, the operator can choose the crusher sizes that will best fit pit conditions. Where large amounts of oversize are encountered, the 10- x 36-inch jaw crusher can be used for the extra primary capacity needed to keep the plant operating at peak capacity. In average pit conditions, the 10- x 24-inch jaw crusher handles primary reduction.

Secondary crushing is handled by either a 24- x 16-inch or a 30- x 18-inch roll crusher. Crusher sizes can be matched or mixed in any combination to adapt the machine to whatever crushing conditions are encountered.

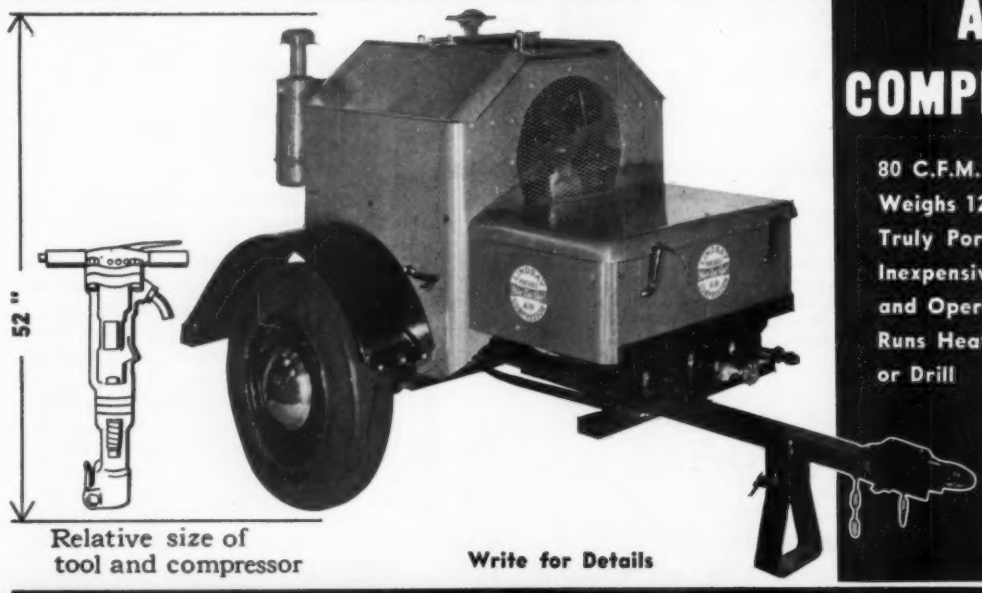
A more detailed description of the new Cedarapids Junior Tandem may be obtained from the IOWA MFG. CO., CEDAR RAPIDS, IA. Write directly, or you may use the Post Card on the insert you may use the Post Card located for your convenience on the insert following Page 52. Circle No. 932.

New Homelite Plant

Plans to build a new 135,000-square-foot factory building in Gastonia, N. C., are announced by Homelite, a division of Textron, Inc., 109 Riverdale Ave., Port Chester, N. Y. The modern, one-story plant is scheduled for completion by the fall of 1957.

According to J. Allan Abbott, president of Homelite, the new plant will contain all the operations needed to produce chain saws efficiently and economically. The building will house all new machinery and equipment, and the project is expected to cost some $2,000,000.

LINDSAY MODEL 80 RADIAL TYPE AIR COMPRESSOR



Relative size of tool and compressor

80 C.F.M. Air Delivery
Weighs 1225 lbs.
Truly Portable
Inexpensive to Own and Operate
Runs Heavy Breaker or Drill

Write for Details

P. K. LINDSAY CO., INC.
EVERETT, 49 MASS. DEERFIELD, N. H.

Easy-starting Sea-Horse 35—one of nine great new models, from 3 to 35 hp.

MORE HEAVY-DUTY POWER for '57

Announcing two new Johnson power classes—with five big Sea-Horses at 18 and 35 HP

Slip-clutch propellers on all nine new models make shear pin changes unnecessary.

Automatic compression relief makes new 35s start as easily as motors half their size.

New 10-ampere generator—accessory for electric-starting 35s. Can't overcharge. Supplies plenty of current for night use.

Here's still more Johnson power for all-weather, everyday use. It's heavy-duty power, delivered at the prop under load, so you know these new Sea-Horses will dig in and deliver. And you don't have to flush them after salt water use because they're fully protected against corrosion. For stall-proof idling, round-trip dependability, authentic economy—for any use that an outboard motor can be put to—you can rely on a Johnson. More than ever this year!

FREE! 1957 Sea-Horse catalog, write: Johnson Motors, 139 Pershing Rd., Waukegan, Illinois. *Division of Outboard Marine Corp. In Canada: manufactured by Johnson Motors, Peterborough, Ontario.*

SWEETEST-RUNNING JOHNSONS EVER

Golden Javelin*	35 hp	$625
Sea-Horse 35*	35 hp	585
Sea-Horse 35	35 hp	495
Sea-Horse 18*	18 hp	475
Sea-Horse 18	18 hp	395
Sea-Horse 10	10 hp	340
Sea-Horse 7½	7½ hp	260
Sea-Horse 5½	5½ hp	230
Sea-Horse 3	3 hp	155

**12-volt electric starting (new quick-charging 10-ampere generator with automatic voltage regulator, available as accessory on first two models listed). Prices f.o.b. factory, subject to change. OBC certified brake hp at 4000 rpm (18s and 35s at 4500).*

A million Sea-Horse owners will tell you JOHNSON KNOWS BEST

STEWART

Specialists

Sewer and pipe cleaning equipment

- SEWER RODS
- SECTIONAL STEEL RODS
- COMPLETE SEWER CLEANING MACHINES
- BRACES AND GUIDES
- BUCKETS, ROOT CUTTERS AND DRAG TOOLS

Save the expenses of experimenting. Consult Stewart for any problem in the SPECIALIZED FIELD of pipe cleaning

SINCE 1901

W. H. STEWART, INC.
P.O. Box 767, Syracuse, New York

Purchasing News

Chicago Prepares for Winter Snows

The first of three boat loads of rock salt, part of an order for 20,100 tons purchased from the Morton Salt Co., AC-9, 120 S. LaSalle St., Chicago, Ill., was delivered to the City of Chicago recently on the S.S. Sumatra. The salt will be used on Chicago streets this winter to control ice and snow. Enough salt has been purchased to treat a road 20 feet wide and 80,000 miles long.

To store the rock salt, the city has leased a strip of land on the south bank of the Chicago River, east of the Michigan Avenue Bridge. The purchase, made by John F. Ward, City Purchasing Agent, is reported to have saved the city some $138,000. The CTA, the Chicago Park District, and the Board of Education also buy rock salt for ice control and snow removal.

Bucyrus-Erie Appoints New Distributor

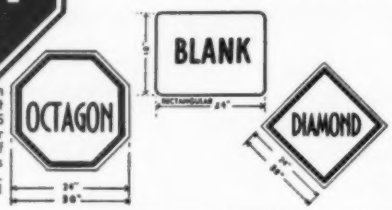
Giles & Ransome, Inc., Philadelphia, Pa., will now offer sales and parts service on Bucyrus-Erie excavators and cranes, according to a recent announcement from the Bucyrus-Erie Co., South Milwaukee, Wis. The Philadelphia firm will serve a three-state area including eastern Pennsylvania, southern New Jersey and the entire State of Delaware. It will handle the full line of convertible excavators and cranes; Transit cranes; truck - mounted, all - hydraulic Hydrocranes; and dragline buckets.

CUT MAINTENANCE COST in HALF with GRACE "EZ-ON" TRAFFIC SIGN FACES:

'EZ-ON' Sign Faces—patented, are made of 30 ga. steel in 3 shapes and 3 sizes—octagon, diamond, rectangular—24" and 30" and 18" x 24". The former in red and yellow, the latter in white only. Standard copy or special—or the rectangular Face blank if you wish. They meet every need—at ½ the regular cost!

3 SHAPES...3 SIZES!

'EZ-ON' Faces slip on right over your present signs—in less than 5 minutes — hence your signs are never out of service. Used by cities and Highway Dept's. all over the United States.



1. Slip 'EZ-ON' Face over old sign. Note wide flanges.
2. Then bend flanges backward holding 'EZ-ON' Face in place.
3. Use Crimping Tool to clamp flange and secure Sign Face.

GRACE 'EZ-ON' Sign Faces are reflectorized and meet all specifications for brilliance and reflective qualities. INVESTIGATE . . . and save. Their cost is HALF that of ordinary signs! SEND FOR SAMPLE SIGN.

GRACE SIGN & MFG. COMPANY
3605 S. SECOND ST. Dept. CA ST. LOUIS 18, MO.

Are WATER RATES a Problem in Your City?

YOU can find out what other cities are charging for water by purchasing "Modern Water Rates," just published by THE AMERICAN CITY.

It provides data on rates used in 130 separate water systems selected from 23 states and covering cities ranging in size from Chicago, Illinois, to Alto, Texas (population 1,007). Of the rates selected, about 12% are used by private water companies and the balance are from public systems of some type.

"Modern Water Rates" can be helpful to you in making recommendations on rate adjustments in your municipality. Order your copy today. You can save $.50 by sending cash, check or postal money order (pay to the order of THE AMERICAN CITY) with the coupon.

To: Circulation Department
THE AMERICAN CITY AC-11
470 Fourth Avenue
New York 16, New York

Yes, please send me by return mail.....copies of your "Modern Water Rates" at:

.....$2.50 per copy. My payment is enclosed with this order.

.....$3.00 per copy. Please send bill. ... ...

Name: .....

Title: .....

Address: .....

Sewage Treatment Costs and Odors Reduced By Santa Barbara System

By HARRY A. TOW
Former Public Works Director
and
RUSSELL B. KEELER
Supt., Sanitation Div.

SIGNIFICANT steps were recently tak- to solve sewage treatment cost and or problems in the city of Santa Bar- ra. A series of operational changes ive been culminated by successful prog- ss, thus far, in experiments conducted ith a reodorant chemical spray pros- mask plant odors.

Sewage arriving at the city's t- lant has been slightly septic, hide content of ½ to 1 pa- during summer. Plant ef- content has averaged on- per million due largely at approximately ½ d- a resulting long dete- chlorination has, unti- essary in order to con- postchlorination dosa- er than normal in Prior to the initiatio- duce sewage septici- costs, with the coro- reduction, complain- commercial propertie- mon.

Steps taken thus f- costs and odor-

excessi- sufficient air an aerobic proce- culation significantly. ides have thus been re- there has been a significant odor production caused b- ical effect of air bubbles a- the preaeration section.

2. During summer tank of the city's tw- settling tanks is theoretical det- two and o- sulphid-

4. Digester supernatant has been re- turned, whenever postchlorination is not in progress, to the plant outfall rather than to the settling tanks, thus reducing septic action of sludge in settling tank hoppers.

5. Routine cleaning of the city's sewer system with sewer balls has been initiated in lieu of the inadequate flushing pro- gram previously in effect, and a wet-well maintenance program has been under- taken on

costs of the chlorine and Alamask, con- sidering chemical costs only, are approxi- mately $12.20 per day for chlorine (175 lbs. at $0.070 per lb.) and $11.80 per day for Alamask (16 lbs. at $0.74 per lb.). Water consumption was approxi- mately 4,300 cubic feet per day for pre- chlorination and is approximately 1,800 cubic feet per day for reodorant.

Reodorant chemicals are being intro- duced from a water spray system located on the settling tank traveling bridges, and proportioned through a mechanical mix- and proportioning pump system origi- installed for use in chemical pre- Two quarter-circle garden ds are used for coverage of diameter clarifier. This tly effective against the m the tank surface and launders and weirs ry of the tank; ob- used can have little ucing substances re- e and not released this point. Suffici apparently avail rant compound t rising from oth- bulence (wet-we nd mask these odo cent commercial

reodorant-masking in progress rtunity h

Chemical Reodorant

In supplementation of these programs, the use of three to six parts per million of chlorine for prechlorination odor control has been replaced with the use of a reodorant chemical spray system on a plant scale experimental basis. Prechlorination was never completely effective in controlling odors and cost the city approximately $16.50 per day, including the cost of chlorine and fresh water. The reodorant chemical tested thus far, Alamask CPM-X, has proven almost completely effective in masking treatment plant odors from the point of application, the primary settling tanks, and fairly effec in masking odors from the remain lant. Present cost is app

Rhodia is sole manufacturer of Alamask® CPM-X and other Alamask odor control chemicals that effectively mask obnoxious malodors emanating from sewage systems, incinerators, dumps and industrial wastes.

Our technical service department will be happy to assist you in controlling the odor problems in your community. Please call on us.

Rhodia INC.
60 East 56th Street
New York 22, N. Y.
Plant: Paterson, N. J.

Philadelphia • Cincinnati • Chicago • Los Angeles • Canada: Naugatuck, Montreal • Cuba: Luis Felipe, Havana • Mexico: Comercial Reka, Mexico City

"750" Torch — up to 40 hours of clear, bright flame — highly visible near or far. Leak-tight, rough and tough.

"Little Wizard" — provides steady wind-defying red light up to 30 hours. Burns bright, stays bright to the last drop!

... with **DIETZ WARNING LIGHTS**

Your reputation, financial position and your insurance rates are at stake everytime the public passes your project.

You may lose everything if there is an accident due to failing warning lights.

Protect yourself and others with Dietz Warning Lights. Reliable and dependable . . . Nothing to wear out or fail . . . and at low cost to you.

INSPECT YOUR PRESENT WARNING LIGHTS

Are you positive they'll function perfectly under all conditions? Let your Dietz distributor help you check.

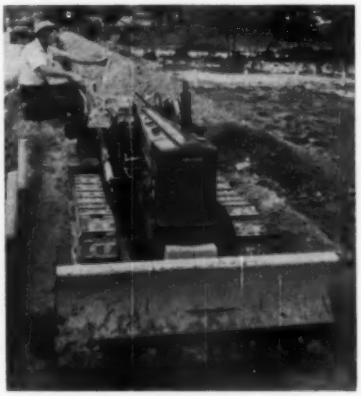
R. E. DIETZ CO.
100 Leavenworth Ave. Syracuse 1, N. Y.

IT'S ALWAYS **DIETZ** FOR *Safety* LIGHTING

Purchasing

John Deere Improves Its "420" Tractor

Dozing, digging, and handling-loading operations with John Deere Industrial "420" crawler and utility tractors are greatly simplified with the introduction of these new, time-saving features. Highlighting the new features is a direction reverser that permits forward or backward travel at the same speed, without shifting gears. Also offered is an easy-to-attach foot throttle which increases engine and ground-travel speeds up to 25%. All new features are optional.



John Deere "420" crawler with trencher and John Deere No. 61 dozer working on a sewer project.

For increased versatility in many municipal operations, the company offers a 5-speed transmission for all models of Industrial tractors. In addition, there is a heavy-duty 3-point hitch for "420" crawler tractors. A continuous-running PTO provides continuous operation, when the tractor is stopped, of such equipment as rotary mowers and cement mixers.

The new time-saving features are further discussed in literature from the JOHN DEERE INDUSTRIAL DIVISION, MOLINE, ILL. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 930.

New Pipe Joint Tape Has Asphalt Coating

A new asphalt-coated tape for field wrapping joints and fittings on underground pipelines is introduced by the L. O. F. GLASS FIBERS CO., 1810 MADISON AVE., TOLEDO 1, OHIO. The company also offers a glass fiber mat, Duratape, which is coated on both surfaces.

According to M. W. Gregory, sales

manager for L. O. F. bonded mat products, the company will furnish either coating to conform to the coating applied on the main body of the pipe. For full information on efficient pipeline protection, write the manufacturer directly, or you may use the Post Card on the insert following Page 52. Circle No. 929.

New Unit Sweeps Indoors and Out

The new Modern Power Sweeper may be used for cleaning public parking lots, recreation areas, driveways and municipal buildings—both indoors and out—and wherever top sweeping efficiency is required. Two models are available, the MHD-36 designed to cover 80,000 square feet per hour, and the MHD-48 for sweeping up to 100,000 square feet per hour. Both are equipped with a special side brush for cleaning along walls and curbs, and will pick up not only small dust particles but heavy debris as well. Outdoors, grass cutting, leaves and brush are easily absorbed. Special dust control equipment prevents

debris from collecting, and a dust control blower eliminates the need for belts and bearings.

The new sweepers will be furnished completely equipped with two headlights, two tail lights, a horn and hydraulic lift. Also a hand throttle and silent muffler. The special 12-inch side brush is designed so that it can be controlled by the driver with a simple foot-pedal mechanism.

For complete information on both the MHD-36 and the MHD-48, write directly to the MODERN POWER SWEEPER CO., AZUSA, CALIF., or you may use the Post Card located for your convenience on the insert following Page 52. Circle No. 911.

FROM THE WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS

Let 1 instrument do all your work...

THE Dualtronic MODEL LC-5

Here is the instrument for which Municipalities have been looking... ONE instrument that locates Pipes, Leaks and Valves, yet costs no more. Model LC-5 not only saves you money but does the job accurately and dependably. Ruggedly constructed. Compact. Lightweight. Simple, one man operation. Model LC-5 is fully guaranteed.

plus these BIG features:

1. Use as Pipe Locator, Leak Detector, Valve Locator.
2. Pin-Point Detection.
3. Automatic on-off and power switching.
4. Crystal microphone.

The GOLDAK Company
Leading Electronic Manufacturers
1933
1544 W. Glenoaks Blvd.
Glendale 1, Calif.

WRITE FOR COMPLETE BROCHURE

PARCOA provides...

A NEW CONCEPT FOR OFF-STREET PARKING

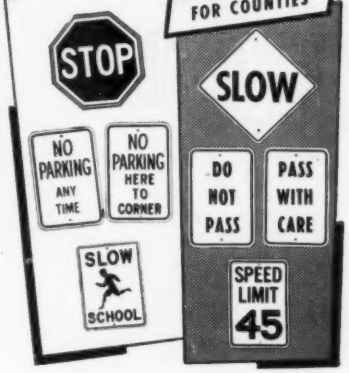
AUTOMATIC PARKING features...

- ★ FLEXIBILITY OF CONTROLS—Choice of exclusive coded "card-keys", coins, tokens or any combination.
- ★ NO ATTENDANTS NEEDED—Pays for itself.
- ★ SIMPLICITY OF OPERATION
- ★ MINIMUM MAINTENANCE
- ★ LOW INITIAL INVESTMENT
- ★ SAFETY . . . DEPENDABILITY

Write for descriptive literature.

PARCOA
Division of Johnson Fare Box Company
4619 N. Ravenswood Ave., Chicago 40, Ill.
Phone LOngbeach 1-0217
Sales and Service Offices in Major Cities listed under BOWSER, Inc.

GRIMCO TRAFFIC SIGNS
FOR TOWNS
FOR COUNTIES



Finest Quality Die Embossed Traffic Signs. A complete line for cities, towns, highways. U.S. Standard and special wordings.

GRIMCO Signs SINCE 1875
GRIMM STAMP & BADGE CO.
8105 Rosalie • St. Louis 17, Mo.

KERN
GETS YOU OUT
(of traffic and crowded areas)
IN A HURRY

TURN TO
KERN INSTRUMENTS
for increased working speed, simplicity and economy of operation, higher degree of accuracy.

45 SEC. SET-UP TIME with
KERN GKI LEVEL
and KERN (Ball & Socket) TRIPOD

- Unique new design—no leveling screws.
- Compact, functional, highly portable.
- Fast, effortless operation.
- Fine tilt screw; coincidence spirit level.
- Mean accuracy as high as 13/1000 ft. per mile.

$225 GKI LEVEL
Including Fixed Leg Tripod

★

REVOLUTIONARY NEW TRIPOD
Levels instrument with remarkable speed. Assures exceptional stability with ball-and-socket head supporting instrument coupling.

★

Write for Brochure GK 479-10

PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern SWISS
The FINEST in SURVEYING EQUIPMENT
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

Purchasing News

The Proper Socket

Municipal electric bills are computed from the readings of watthour meters. Modern meters are connected to the consumers' circuits by a socket as simple as a fuse socket. Round die-cast meter sockets are designed for use with single phase and network meters. Square sockets are for network meters of four, five and six terminals. Box-type sockets are for polyphase watthour and demand meters.

A new bulletin makes your selection of the correct G-E watthour meter for any application as simple as 1, 2, 3. This 20-page, amply illustrated booklet also presents reference tables and four pages of connection diagrams. Write for "How to Select Meter Sockets," to the GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 909.

If Your Streets Sport Garbage Cans

A city saves money on labor and equipment when garbage collections are reduced or eliminated. And that is exactly what the Youngstown Kitchen food waste disposer does. Moreover, it produces a consistent slurry that flows easily through any properly designed sewer.

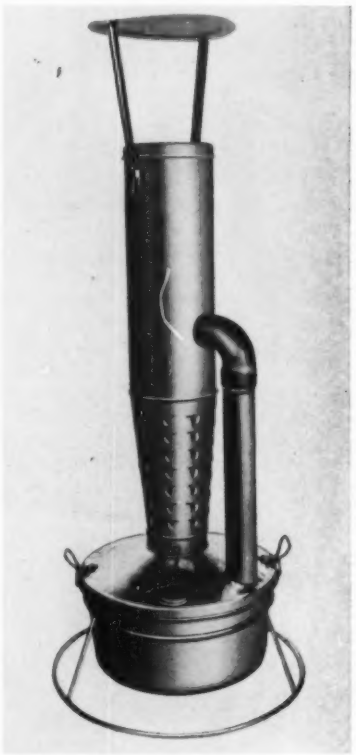
Garbage is a costly nuisance. Officials of an increasing number of cities are arranging for its drastic reduction by encouraging widespread installation of food waste disposers. Additional advantages are no burning garbage, no alley food for vermin, and no garbage-can-lined streets.

For consultation and a knowledge of the eight points of a good disposer, write directly to YOUNGSTOWN KITCHENS, DEPT. MI-57, WARREN, OHIO, or you may use the Post Card on the insert following Page 52. Circle No. 937.

Portable Heater Aids Winter Construction

A portable space heater for permanent, supplementary or spot-heating use, is offered by SCHEU PRODUCTS CO., 297 STOWELL ST., UPLAND, CALIF. The low-cost Salamander may be used for heating concrete during winter construction projects, and as a supplementary heater in municipal machine shops and warehouses. It operates without smoke or soot, producing from 70,000 to 140,000 BTU's per hour, using ½ to 1 gallon of fuel oil.

All Hy-Lo heaters operate on the patented return gas principle, and require minimum care and maintenance. They feature carrying handles for easy

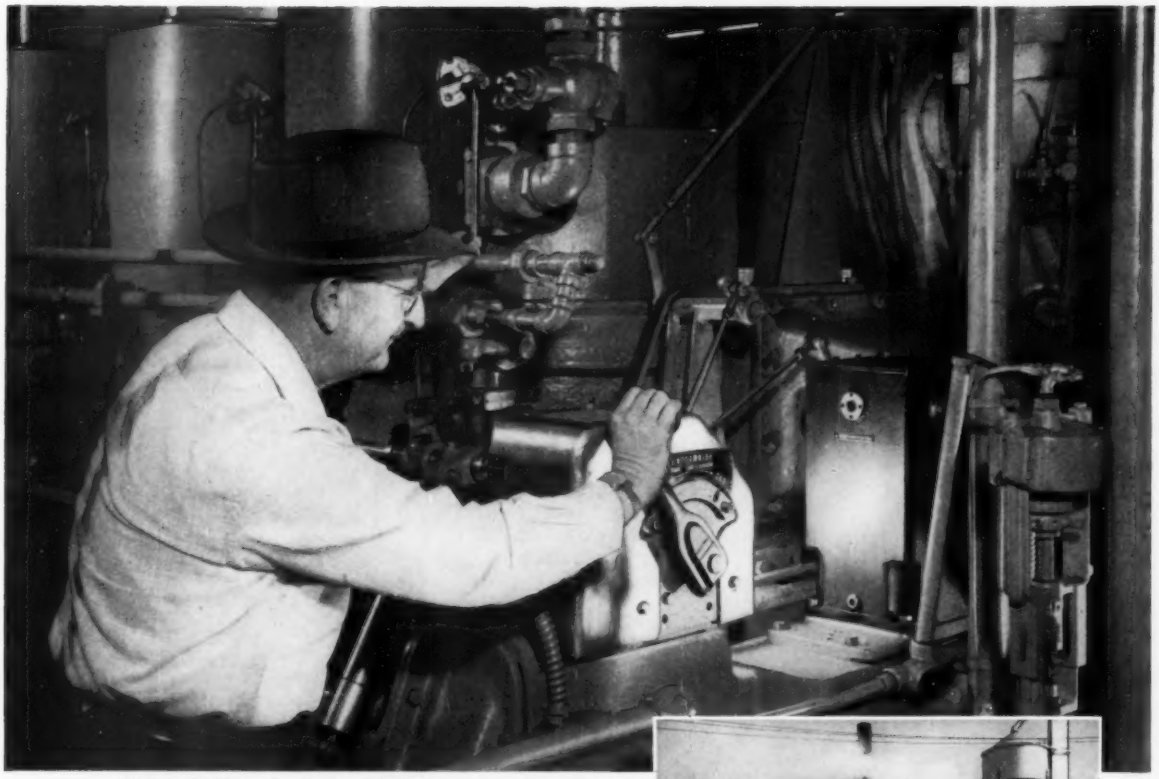


moving, and a special damper for quick extinguishing. One 10-gallon filling of oil lasts about 20 hours at normal burning rate, or 10 hours burning at full capacity.

A more detailed description of the Hy-Lo heater may be obtained directly from Scheu Products Co., or you may use the Post Card on the insert following Page 52. Circle No. 926.

General Binding Plans New Building

Recent ground breaking ceremonies for a new $1,000,000 building in Northbrook, Ill., were held by the General Binding Corp., AC-106, 812 Belmont Ave., Chicago, Ill. The new structure, reports W. N. Lane, president of the firm, will be built on a 30-acre site between Edens and Skokie highways, near Dundee Rd. General Binding manufactures plastic binding and spirit duplicating equipment and supplies.



Walter T. Messeck, Supt. of Utilities at Tipp City, Ohio, sets Enterprise "Select-O-Matic" control for Dual Fuel operation.

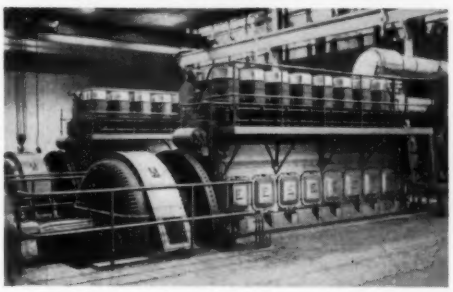
Dual Fuel? Heavy Fuel? Tipp City, Ohio, Profits From Both With Their Two Modern Enterprise Engines

As long as fuel prices fluctuate, and availability of different fuels varies, Enterprise "Select-O-Matic"® Dual Fuel engine systems contribute important savings in power production.

This is the case at Tipp City, Ohio, where they converted their Enterprise Engines from straight diesel operation just two years ago. Dual fuel operation on natural gas and No. 2 diesel pilot fuel is alternated on a seasonal basis, with straight diesel operation using either light or heavy fuel oils, depending on the current market price of the various grades of oil, during the winter months when gas is not available. Gas and heavy fuel operation is economical, and in this business the saving of as little as 1 mill per kilowatt hour amounts to a pretty penny when you're generating 9,488,200 KW hours a year as was the case at Tipp City in 1955.

Let us show you how Enterprise Dual Fuel economy can improve *your* operations. Write today for full information, or call your nearest Enterprise sales and service office.

The Tipp City Diesel Power Plant is a modern show place. Hundreds of visitors have inspected this efficient, well-run operation where two 1755 HP Enterprise Turbo-charged Engines supply all the power. Dual fuel and heavy fuel systems were installed in 1954, to take full advantage of the less expensive fuels available.



ENTERPRISE
dependable **ENGINES**

Over a million horsepower at work the world over!

ENTERPRISE ENGINE & MACHINERY CO.
Subsidiary of General Metals Corporation
18th and Florida Streets, San Francisco 10, California
Export Department, New York

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MORE POWER AT GREATER DEPTH

with the

HENRY

Hydraulic Backhoe

The Henry takes the deepest bite with fullest power. That's just one advantage of the telescoping boom—a patented feature you get only with the Henry Hydraulic Backhoe.

Digging power does not decrease as the hole gets deeper.

And, because the boom itself stretches and retracts automatically, one dipper stick handles every digging and trenching job—deep or shallow.

Straight sewer lines are easy to dig with the Henry. Even on a 25 per cent slope, it levels up in seconds . . . digs from any angle within its 160 degree swing arc . . . mounts in minutes on any of 53 tractor makes and models.

The Henry digs sewer systems, culverts, mains, bell holes, cesspools, foundations, ditches—digs them faster and more economically.

See your nearest Henry dealer, or write us today for more details.

"You can do it BETTER with a HENRY"

HENRY MANUFACTURING COMPANY, INC.

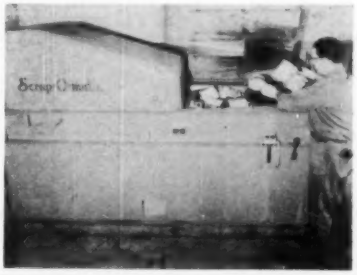
1700 N. Clay Street • Topeka, Kansas

BACKHOES • BACKFILL BLADES • TRACTOR SHOVELS

Purchasing

Bales Scrap Metal

A scrap metal baler that requires a minimum of space, yet performs a full-scale baling operation, has recently been unveiled and is solving the problem of storage and disposal of scrap metals. It compresses scrap metal and trimmings into uniform 12 x 12-inch briquettes for easy handling and transportation.

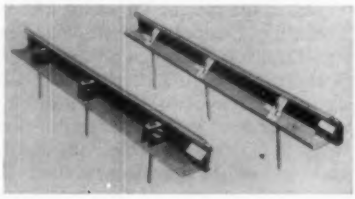


The Scrap-O-Matic takes a minimum of space and quickly and easily bales scrap into compact briquettes.

To demonstrate Scrap-O-Matic's efficient operation, prospective customers are invited to send up to 200 pounds of scrap metal to be baled in regular briquettes, without charge, and returned.

Inquiries about this unusual trial demonstration may be directed to David R. Brown, sales manager, BALEMASTER DIVISION, EAST CHICAGO, IND. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 907.

New, Low-Cost Street Paving Forms



Street construction crews can simplify any paving operation with these new street paving forms designed for fast handling, maximum durability, and low cost. The general purpose forms are available in both single and double wedge lock types, and feature a special alloy steel construction, electro-welded for extra strength. They are made by GENERAL ROAD MACHINES, INC., NILES, OHIO.

The tapered sliding lock joint connections furnished with the new street paving forms assure fast, positive align-

ment. These same lock joint connections reinforce form treads at the joints, and are said to prevent tread distortion.

General Road Machines, Inc., carries many popular types and sizes of street paving forms in stock for quick delivery. The company will also design and build special forms to meet individual requirements. For further details, write the manufacturer directly, or you may use the Post Card on the insert following Page 52. Circle No. 922.

New Mower for Parks, Golf Courses

Wherever there are large areas of high grass, weeds and brush to cut, you can do the job quickly and efficiently with a Model H Champion sickle bar mower. The new Model H features a "floating" cutter bar designed to follow ground contours. It operates in rough, hilly or rocky territory, and has a cutting height of 1½ inches.

A lightweight, aluminum engine, delivering 2.75-hp, powers the new Champion. This greater power permits the use of a 44-inch sickle bar with an actual cut of 42 inches. Screw-adjustable knife clips maintain accurate settings for longer cutting efficiency, and two independent clutches provide safe starting and instant control.

A variety of attachments for the Model H make it an all-year maintenance machine. The sickle bar mower can be quickly and easily replaced by a Jari power sprayer, rotary tiller-cultivator, snow thrower or reel-type mower.

Additional data on the Model H Champion may be obtained from JARI PRODUCTS, INC., DEPT. KP, 2990 PILLSBURY AVE. S., MINNEAPOLIS 8, MINN. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 910.

GUNITE does it **2** times as fast at **1/2** the cost

"Gunite" is the modern process (sand and cement applied pneumatically) for repairing, constructing, lining:

- Reservoirs
- Dams
- Filter Plants
- Sewage Disposal Plants
- Tanks
- Stadiums
- Bridges
- Sea Walls
- Swimming Pools, etc.

Write FOR MORE INFORMATION, INCLUDING 48 PAGE "GUNITE" BOOKLET.

PRESSURE Concrete Co.

FLORENCE, ALA. 315 So. Court Street

OTHER OFFICES IN

CHARLOTTE, N. C. Liberty Life Bldg. | CHICAGO, ILL. 33 N. LaSalle Street | NEWARK 5, N. J. 193 Emmet Street

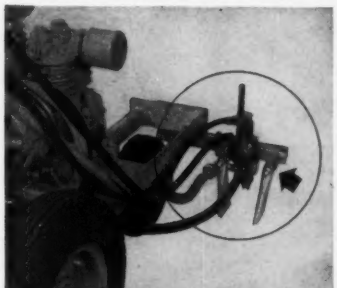
SPARLING Main-Line METERS

SPARLING MAIN-LINE METERS play an important role in the design of modern water works facilities. Water, too valuable to be handled carelessly, must have the same careful accounting given any precious resource. For this reason, whenever main-line meters are required, the name SPARLING has become a design standard among engineers and superintendents who seek the finest equipment at a moderate price.

SPARLING METER CO.
INCORPORATED
General Office and Plant
225 North Temple City Blvd.,
El Monte, Calif.

Atlanta Cincinnati Los Angeles Seattle
Boston Dallas San Francisco Toronto, Can.
Chicago New York Kansas City England

NEW KELLY-CRESWELL SPRAY GUN MAKES ROAD STRIPING EASIER



Kelly-Creswell Company, Xenia, Ohio, recently announced the introduction of a new automatic striping gun (shown above) for use on highway and industrial road-marking equipment. Gun is Patented.
This new gun is diaphragm-operated, which eliminates the air cylinder and upper packing gland normally found in most spray guns. As a result, it eliminates the greatest cause of air loss in automatic spray guns. Actually, the new gun requires about 25% less compressed air to operate at peak efficiency.
The gun is being installed on all of the various types of striping equipment made by Kelly-Creswell. It also is available as a replacement part.
Kelly-Creswell is a pioneer manufacturer of a complete line of road-marking equipment —truck-mounted, power driven and hand operated.

For additional information write
Kelly-Creswell Company
Xenia, Ohio

Lower Cost Elevated Tank

Designed especially for smaller municipalities, this new elevated water storage tank is available in relatively small capacities, ranging from 15,000 to 75,000 gallons. The low-cost structure features a functional tripod design, and is all-welded for easy maintenance. Standard heights to the bottom of the tank range from 25 to 100 feet in capacities up to 30,000 gallons, and 25 to 125 feet in capacities of 40,000 gallons and over.

The new tripod tank has fewer supporting columns and eliminates the need for a large central riser and balcony, thus reducing total painting area. Too, the quantity of concrete required for foundations is normally less than the amount required for similar-capacity elevated tanks of other designs.

The three tripod columns, ranging from 8 to 22 inches in diameter, eliminate the need for sway bracing in the top panel. This both improves the appearance of the tower and saves material and construction time. The riser pipe is usually 6 to 10 inches in diameter. If the tank is installed in an area where freezing is likely, a frost casing is available to insulate the riser pipe.

This tripod elevated tank at Brae Burn Country Club, Bellaire, Tex., stores 60,000 gallons of water.

More detailed information on the new tripod water storage tank may be obtained from the CHICAGO BRIDGE & IRON CO., 332 S. MICHIGAN AVE., CHICAGO 4, ILL. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 908.

New Crouse-Hinds Subsidiary

To supplement its line of aviation lighting and airport control tower equipment and weather measuring devices, the Crouse-Hinds Co., of Syracuse, N. Y., recently purchased Surveyor Service Co., Inc. The new Crouse-Hinds subsidiary, located in Silver Spring, Md., manufactures seismographs, tide gauges, and automatic weather observation systems.

John R. Tuttle, president of Crouse-Hinds, and R. J. Sloan, Crouse-Hinds executive vice-president, will serve as chief officers of the new subsidiary. The three former owners of Surveyor Service Co., Joseph A. Kuhn, Jr., Alexander C. Stabler and John E. Clarke, will continue as active managers of the firm.

HELP KEEP OUR CITY CLEAN
HELP KEEP OUR VILLAGE CLEAN
HELP KEEP OUR BOROUGH CLEAN
HELP KEEP OUR STREETS CLEAN
HELP KEEP OUR PARK CLEAN

Invitations to Automatic Cleanliness

with

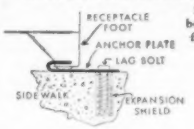
BENNETT

WASTE RECEPTACLES

Eye catching stenciled messages on 1, 2, 3 or 4 sides of Bennett Waste Receptacles silently invite people to help keep Cities, Villages, Boroughs, Parks, Streets and Sidewalks clean. People automatically respond to these silent invitations and deposit waste paper and refuse in these attractive, easy to use, conveniently placed waste receptacles. Bennett Waste Receptacles are made of heavy gauge steel with rounded corners, welded joints, stainless steel feet, special outdoor White, Gray or Green baked on enamel finish and many other features. Quality and every consideration for hard use are self evident throughout Bennett Self-Closing Waste Receptacles.

Fill in and mail coupon today

QUICK, EASY, ECONOMICAL ANCHORING METHOD



Showing one plate, lag bolt and expansion shield from the economical kit containing 4 of each.

THE BENNETT MANUFACTURING CO., ALDEN, N. Y. AC-1156

Kindly send to my personal attention a FREE copy of the fully-illustrated Bennett Waste Receptacle Catalog listing standard stencils for messages.

Name..... Title.....

Municipality..... Street.....

City..... State.....

"Planting" Lancaster's New Water Line

Lancaster, Pa., is one city that is taking vigorous steps to solve the problem of municipal water supply. Now under way is a vast water-supply project including construction of an intake, pumping station and filtration plant on the Susquehanna River, a 15-million gal reservoir and a 10-mile steel main. Completion of the pipeline early in 1957 will add 8 million gals per day to the city's water supply. The line's ultimate capacity will be 32 million gals per day.

The job requires 55,500 ft of 42-in.-ID x $\frac{5}{16}$-in. tar-enameled steel pipe, plus specials, fabricated at Bethlehem's Steelton, Pa., pipe shop, and trucked to the job site in 40-ft lengths. The portion of the line extending 31,400 ft from the river to the reservoir is being installed by Frank Kukurin & Sons, Inc., of E. McKeesport, Pa.; the 24,100-ft section into the city by Alconn Utilities, Inc., of Verona, N. J. The entire project was engineered by Gannett, Fleming, Corddry & Carpenter, Inc., of Harrisburg, for the City of Lancaster Authority.

How about *your* water supply plans? Let us show you the many advantages of planning for the future with tar-enameled steel pipe. Remember that *every length* of steel pipe is hydrostatically tested in the shop—your assurance of its strength, safety and freedom from leaks. For further information, contact the nearest Bethlehem sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

PIONEER
GEN-E-MOTOR

PORTABLE POWER

WHEN and WHERE YOU NEED IT!

Have reliable electric power available at **any** location . . . on any job. Pioneer Generators will furnish the kind of dependable power needed in emergencies; day-to-day new construction work and all repair and maintenance jobs. High-wattage, lightweight models can be easily carried by hand . . . heavy duty units for continuous operation are skid mounted. Over 40 models from 500 watt to 12 KW continuous duty units.

Write Today for FREE Catalog

PIONEER GEN-E-MOTOR CORP.
5849 West Dickens Ave.
Chicago 39, Illinois

Gentlemen:

Please send me latest catalog on Pioneer Generators.

Name .....

Address .....

City ..... Zone .... State.....

Purchasing News

Portable Traffic Kit for Police, Firemen

Use the Lyle Saf-T-Pak at the scene of fires, accidents and every other emergency traffic situation. The new portable traffic control kit is easily unfolded, and ready to work in seconds. It includes six warning signs, with messages on both sides, designed to cover all traffic emergencies.

The new sign kit opens like a suitcase and, when open, stands 46½ inches high. Sign panels and signal flags feature a reflective sheeting for 24-hour visibility. The flags fold out from stored position in the rear of the middle sign panel. The blinker lights are inserted in slots on the rear of the middle panel and are locked rigidly in place.

A more detailed description of the Saf-T-Pak, designed for police and fire departments, public utilities, schools and airports, may be obtained from the LYLE SIGN CO., 2722 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 923.

A Seven-Pound Leak Detector

A fast, easy way to locate hidden leaks in water pipelines is with the new transistorized M-Scope leak detector. This portable instrument uses five miniature hermetically-sealed transistors, providing increased amplification and eliminating the problem of microphonic tubes. It weighs only seven pounds, and may be used to locate leaks under soil, pavement or cement.

The new leak detector has a built-in battery test circuit for easy maintenance. Its controls and operation have been streamlined and simplified. The detector is furnished with a leather carrying case, and measures 9 x 9 x 5 inches.

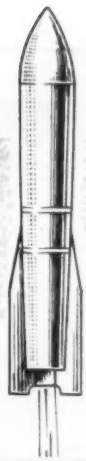
A more detailed description of the new M-Scope may be obtained from the FISHER RESEARCH LABORATORY, INC., 1961 UNIVERSITY AVE., PALO ALTO, CALIF. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 919.

New Plant to Make Liquid Alum

Liquid alum, used for purifying water and sewage, will be made at the new Cloquet (Minn.) plant of the American Cyanamid Co., 30 Rockefeller Pl., New York 20, N. Y. The plant is scheduled for completion by mid-December, this year, and will be operated by the company's Industrial Chemicals Division. American Cyanamid operates more than 30 plants in the United States, manufacturing products ranging from pharmaceuticals to heavy industrial chemicals.

Memphis Firm to Sell Michigan Line

Priester Machinery Co., Inc., of Memphis 5, Tenn., has been appointed to sell and service Michigan tractor shovels and excavator cranes, according to Clarence E. Killebrew, vice-president of the



Huntsville, Alabama–

Rocket City, U. S. A.

recognizes 118-year service of

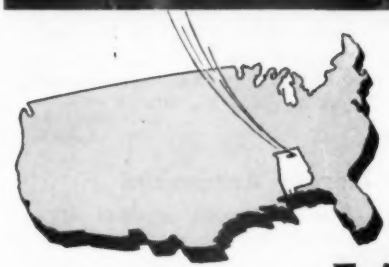
CAST IRON PIPE

Historic Huntsville, Alabama — rocket and guided missile development center of the U.S.A. — is one of the nation's 60 cities with Cast Iron water mains laid over a century ago. Completed in 1838, they are still giving dependable service.

Modern Huntsville is a thriving city with a "zooming future." Establishment of the Redstone Arsenal and location of many new enterprises have necessitated a major waterworks expansion.

Due recognition of the long and satisfactory service of Cast Iron Pipe in Huntsville was given by its City Council when it purchased 13,000 tons of new Cast Iron Pipe for this project.

Permanence, trouble-free service and savings to taxpayers are the major reasons why municipal engineers in the big majority of other cities also make Cast Iron Pipe first choice for new installations and extensions of existing systems.



★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Our Company does not manufacture Cast Iron Pipe, but produces quality iron from which quality pipe is made by many of the nation's leading foundries.

WOODWARD IRON COMPANY

Since 1882

WOODWARD, ALABAMA

Clark Equipment Co., 2495 Pipestone Rd., Benton Harbor 37, Mich. The Michigan line is manufactured by the firm's Construction Machinery Division. Priester Machinery is located at 249 S. Third St.

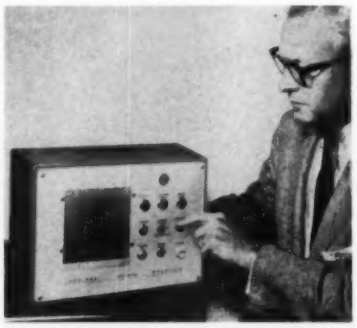
New Tractor-Shovels

Two new four-wheel-drive, pneumatic-tired "Payloader" tractor-shovels, Models HH and HU, are announced by THE FRANK G. HOUGH CO., 710 SEVENTH AVE., LIBERTYVILLE, ILL. The HH "Payloader" has a payload capacity of 1¾ cubic yards and a struck load capacity of 1⅓ cubic yards. The HU shovel has a payload of 1¾ cubic yards and 1 cubic yard struck. Both machines are designed with "Paylomatic" power-shift transmission, finger-tip directional control, and a torque-converter drive.

Additional details on the new tractor-

shovels may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No. 931.

New Radio Receiver for Civil Defense



C. M. Lewis, manager, RCA Communications Products Department, flips the toggle switch which automatically switches "on" with the transmission of a "Conelrad" alert by radio station. For a full description of this Conelrad radio receiver, write Radio Corp of America, RCA Bldg., 30 Rockefeller Plaza, New York 20, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 927.

Merger Announced

John K. Rondou, president of the Computer-Measurements Corp., of North Hollywood, Calif., announces the merger of Computer - Measurements with the Hancock Mfg. Co., of Jackson, Mich. Computer - Measurements, reports Mr. Rondou, will retain its identity, and no immediate changes in management, manufacturing or sales personnel are planned.

The Hancock Mfg. Co., headed by

the ARBA ROAD SHOW and CONVENTION

Exhibits

Whatever your interests, you'll find the equipment, materials and supplies you use on display. New models, new methods and current machines are exhibited.

Discussions

Hear internationally-known authorities report on the latest advancements in construction—lead dicussions about new ideas—present details of the hugh vital road program.

Demonstrations

See machines at work, actually doing the jobs which you face each day. See methods proved before your eyes.

Get-togethers

The contacts you make will prove of inestimable value. Experts from every part of the world—every one ready to talk about your problems.

WHO YOU'LL SEE THERE!

A partial list of exhibitors planning to be there

ACME IRON WORKS • AEROIL PRODUCTS COMPANY, INC. • AEROQUIP CORPORATION • ALLEN INDUSTRIAL PRODUCTS, INC. • ALLIS-CHALMERS MANUFACTURING CO. • AMERICAN BOSCH DIVISION (AMERICAN BOSCH ARMA CORPORATION) • AMERICAN CHAIN & CABLE COMPANY, INC. • AMERICAN HOIST & DERRICK CO. • AMERICAN MANGANESE STEEL (DIVISION OF AMERICAN BRAKE SHOE CO.) • AMERICAN TRACTOR CORPORATION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • ATHEY PRODUCTS CORPORATION • AUSTIN-WESTERN COMPANY • BALDWIN-LIMA-HAMILTON CORPORATION • BARBER-GREENE COMPANY • BARCO MANUFACTURING CO. • BAY CITY SHOVELS, INC. • BLAW-KNOX CO. • WM. BROS. BOILER & MFG. CO. • J. I. CASE COMPANY • CATERPILLAR TRACTOR CO. • CHAIN BELT COMPANY • C. H. & E. MANUFACTURING CO. • CHEVROLET MOTOR CORP. (TRUCK & COMMERCIAL DEPARTMENT) • CHICAGO RAWHIDE MANUFACTURING COMPANY • CHRYSLER CORPORATION (DODGE DIVISION) • C.I.T. CORPORATION • CLARK EQUIPMENT COMPANY • CLEAVER-BROOKS COMPANY • THE CLEVELAND GRAPHITE BRONZE COMPANY • CLEVELAND TRENCHER COMPANY • CONSTRUCTION MACHINERY COMPANY • CONTINENTAL MOTORS CORPORATION • COOK BROS. EQUIPMENT COMPANY • CUMMINS ENGINE COMPANY, INC. • DANA CORPORATION • BUCYRUS-ERIE COMPANY • BUDA DIVISION (ALLIS-CHALMERS MANUFACTURING CO.) • THE BUFFALO-SPRINGFIELD ROLLER CO. • BUTLER BIN CO. • THE ELMCO CORPORATION • ELECTRIC STEEL FOUNDRY COMPANY • ELECTRIC WHEEL COMPANY • E. D. ETNYRE & CO. • EUCLID DIVISION (GENERAL MOTORS CORPORATION) • FORD MOTOR CO. • FRUEHAUF TRAILER COMPANY • FULLER MANUFACTURING CO. • THE GALION IRON WORKS & MFG. CO. • GAR WOOD INDUSTRIES, INCORPORATED • GENERAL ROAD MACHINES, INC. • GMC TRUCK & COACH DIVISION (GENERAL MOTORS CORPORATION) • GOOD ROADS MACHINERY CORPORATION • DETROIT DIESEL ENGINE (DIVISION GENERAL MOTORS CORP.) • DIAMOND IRON WORKS, INC. (GOODMAN MANUFACTURING COMPANY) • R. E. DIETZ COMPANY • EAGLE IRON WORKS • THE FRANK G. HOUGH CO. • HUBER-WARCO COMPANY • HYATT BEARINGS DIVISION (GENERAL MOTORS CORPORATION) • HYSTER COMPANY • INGERSOLL-RAND CO. • INTERNATIONAL HARVESTER CO. • IOWA MANUFACTURING CO. • JACKSON VIBRATORS, INC. • THE JAEGER MACHINE COMPANY • THE JEFFREY MFG. CO. • THE C. S. JOHNSON COMPANY • JOY MANUFACTURING CO. • KALAMAZOO DIVISION (THE NEW YORK AIR BRAKE COMPANY) • KOEHRING COMPANY • KOHLER COMPANY • THE GORMAN-RUPP CO. • W. E. GRACE MFG. CO. • THE HANSON CLUTCH & MACHINERY CO. • HARNISCHFEGER CORPORATION • THE HELTZEL STEEL FORM AND IRON CO. • HENDRIX MANUFACTURING CO., INCORPORATED • HERCULES GALION PRODUCTS, INC. • HERCULES MOTORS CORPORATION • HETHERINGTON & BERNER, INC. • HIGHWAY EQUIPMENT CO., INC. • HOMELITE DIVISION (TEXTRON AMERICAN, INC.) • McKIERNAN-TERRY CORPORATION • MINNEAPOLIS-MOLINE COMPANY • MURPHY DIESEL COMPANY • N. P. NELSON IRON WORKS, INC. • NORDBERG MFG. CO. • NORTHWEST ENGINEERING COMPANY • THE OLIVER CORPORATION • LE ROI DIVISION (WESTINGHOUSE AIR BRAKE COMPANY) • R. G. LE TOURNEAU, INC. • LE TOURNEAU-WESTINGHOUSE COMPANY • LINK-BELT SPEEDER CORP. • LITTLEFORD BROS., INC. • MACWHYTE COMPANY • MARION POWER SHOVEL COMPANY • MASTER VIBRATOR COMPANY • SMITH ENGINEERING WORKS • STANDARD STEEL CORPORATION • STANDARD STEEL WORKS • STOW MANUFACTURING COMPANY • TAMPO MANUFACTURING CO. • THE TEXAS COMPANY (ASPHALT SALES DEPARTMENT) • THE THEW SHOVEL CO. • THE OWEN BUCKET COMPANY • PETTIBONE MULLIKEN CORP. • PIONEER ENGINEERING WORKS, INC. • PORTLAND CEMENT ASSOCIATION • JOHN A. ROEBLING'S SONS COMPANY • SCHIELD BANTAM COMPANY, INC. • SCHRAMM, INC. • SEAMAN-ANDWALL CORPORATION • SEAMAN ENGINEERING & RESEARCH CO. • S K F INDUSTRIES, INC. • THE WHITE MOTOR COMPANY • WOOLDRIDGE MANUFACTURING DIVISION (CONTINENTAL COPPER & STEEL INDUSTRIES, INC.) • THE TIMKEN ROLLER BEARING COMPANY • THE TORRINGTON COMPANY • TWIN DISC CLUTCH COMPANY • UNION CHAIN & MANUFACTURING COMPANY • UNION WIRE ROPE CORP. • UNIT CRANE & SHOVEL CORP. • UNITED STATES STEEL CORPORATION • WALTER MOTOR TRUCK COMPANY • THE WARNER & SWASEY COMPANY • WAUKESHA MOTOR CO. • WISCONSIN MOTOR CORPORATION • WORTHINGTON CORPORATION

CHICAGO
International Amphitheatre

Your municipality cannot afford to be without an Abbott Coin Counter. This low priced machine will pay for itself in a matter of months with the time saved in the handling of coins. It counts and packages at the rate at 2500 coins per minute. Imagine how much you could save with one.

We offer a wide variety of coin counters with a model priced as low as $135 For the answer to **any** coin handling problem, come to a specialist. Write today for the Abbott money handling equipment catalog.

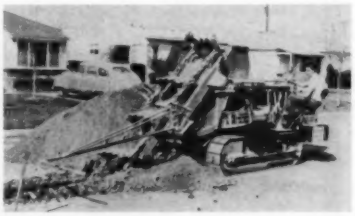
ABBOTT
COIN COUNTER
COMPANY
144th Street and Wales Avenue
New York 54, N.Y. · LUdlow 5-1200

Purchasing News

Robert W. Hancock, president, manufactures automotive hardware. Major products of Computer-Measurements include electronic counting, timing and controlling equipment; and pipe, leak and metal detectors.

Improved Trenching Machine Digs 10 Feet Deep

Digging capacity of the Model 155 general utility Trenchliner has been increased to 10 feet, according to the PARSONS CO., of NEWTON, IA. The efficient machine will now dig a trench 10 feet deep and from 16 to 26 inches wide. It operates with a range of 30 digging speeds, easily selected by control



lever, and will produce up to 12.7 lineal feet of trench per minute. By changing a simple sprocket you can get a higher range of digging speeds, producing a maximum of 25.17 lineal feet of trench per minute.

The Parsons 155 is 7 feet-4 inches high, and 5 feet-4 inches wide, and is easily operated in congested areas. It features a reversible power-shift conveyor, self-cleaning tractor-type crawlers, and a range of bucket sizes fitted with reversible, self-cleaning "Tap-In" teeth. A choice of gas or diesel power is available.

The Parsons Co. is a subsidiary of the Koehring Co., Milwaukee, Wis. For further information, write Parsons Co. directly, or you may use the Post Card on the insert following Page 52. Circle No. 912.

Atlanta Uses Guardrails on Dangerous Curves

Expressway dividers, constructed of Flex-Beam guardrail, are solving a traffic problem in Atlanta, Ga. Used on dangerous curves, the double-lined guardrail prevents drivers from cutting across divider strips. It not only helps keep the car on the road, it also helps the driver to regain control in the event his car leaves the road.

How Flex-Beam guardrail will help solve many of your city's traffic problems, is discussed in literature from

ARMCO DRAINAGE & METAL PRODUCTS, INC., 3316 CURTIS ST., MIDDLETOWN, OHIO. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 906.

New Fire Fighter

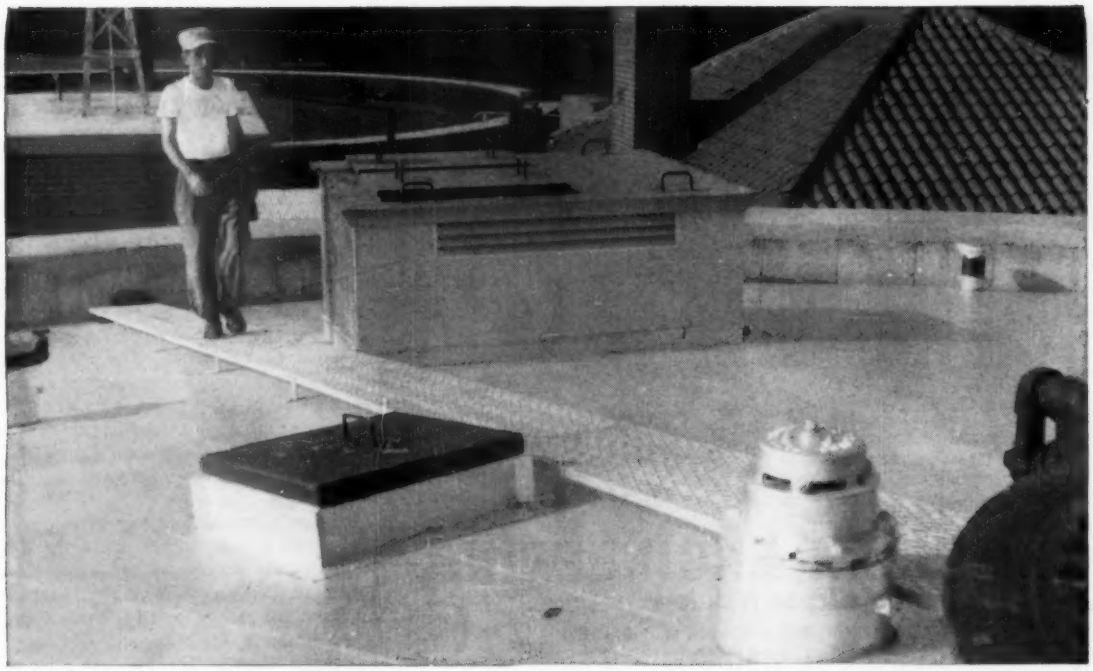
Municipal fire departments may secure up-to-date fire-fighting equipment by specifying Ward LaFrance apparatus. The company's newest fire-fighter has a powerful 270-hp engine, an electromatic pump with push-button controls, a bus-type front axle and a shorter wheelbase. It offers a shorter turning radius. The

fully-waterproofed equipment compartment, located over the pump, has large access doors on each side.

Complete information on the Ward LaFrance line for 1957 is available from the WARD LAFRANCE TRUCK CORP., ELMIRA, N. Y. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 915.

New Price Bros. Plant for Concrete Pipe

A new $1,000,000 concrete pressure pipe plant in Hattiesburg (Miss.), has been constructed by the Price Brothers Co., 1932 E. Monument Ave., Dayton 1, Ohio. The plant will manufacture pipe in diameters from 16 to 54 inches and larger. It is located on a 20-acre site



At Champaign-Urbana, Illinois . . .

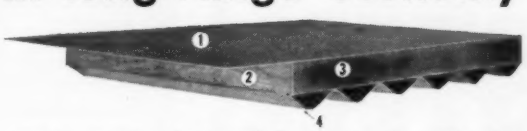
A sewage plant invests in long-range economy

PFT metal roofing on new Floating Cover provides longer life, better insulation

With future economies in mind, the Champaign-Urbana Sanitary District specified a *PFT Floating Cover* with *metal-clad roofing* for their new 65′ diameter digester.

The metal roofing provides four distinct advantages over conventional wood types: (1) longer life—equal to the life of the Floating Cover, (2) more efficient insulation, (3) fewer maintenance problems, (4) easier assembly and installation.

Shown at actual installations, PFT metal sections are easily unpacked and assembled. Cardboard boxes in foreground contain panels as they are shipped.



Section of roofing showing (1) aluminum top sheet, (2) inch-thick fiber-glass insulation, (3) aluminum reinforcing channel, (4) corrugated supporting ribs.

PFT metal roofing consists of prefabricated sections with embossed aluminum top sheets, each piece marked for easy assembly at the plant site. The sections are designed for close fitting in the field with a 3″ lap of top metal covering at all joints (see illustration). Cutout sections are provided to fit around sampling walls, hatch framing, manholes, etc.

With fiber-glass insulation, PFT metal roofing resists heat loss and keeps digester heating costs at a minimum.

Ventilators are provided for the space between ceiling plate and roof deck. Also included is a 19″ wide walkway of galvanized steel, deformed for sure footing.

The PFT Floating Cover at Champaign-Urbana includes a complete *Pearth Gas Recirculation System*—an economical process that controls the formation of scum, making more effective use of the entire digestion tank capacity.

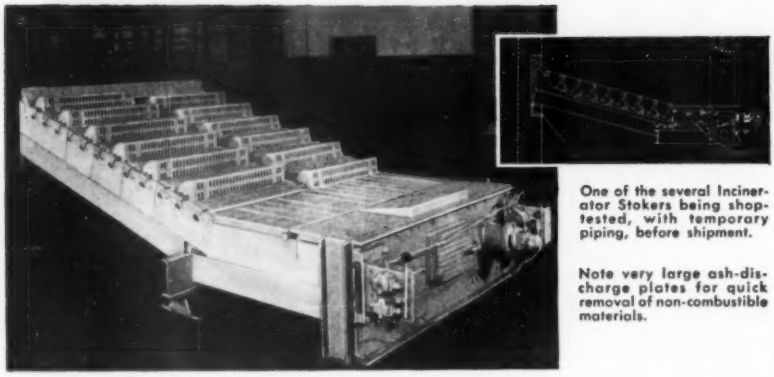
Design of plant by / *Wilson & Anderson, Consulting Engineers Champaign, Illinois*

waste treatment equipment
exclusively since 1893

P.F.T.

PACIFIC FLUSH TANK CO.
4241 Ravenswood Avenue
Chicago 13, Illinois

AE INCINERATORS HAVE
EXTRA LARGE DUMP-PLATES



One of the several Incinerator Stokers being shop-tested, with temporary piping, before shipment.

Note very large ash-discharge plates for quick removal of non-combustible materials.

AN EXCLUSIVE FEATURE of the AE Incinerator grates is the extra large dump-plate area. The possibility of clogging is reduced to the absolute minimum when large objects pass through it... American Engineering's years of experience in stoker design and construction is your assurance of trouble-free, economical performance.

Write for full details, today.

AMERICAN ENGINEERING COMPANY
DEPT. S-108, WHEATSHEAF LANE & SEPVIVA ST., PHILADELPHIA 37, PA.
Canadian Subsidiaries: Affiliated Engineering Corporations, Ltd., Montreal, P. Q.... Bawden Industries Ltd., Toronto, Ont.

STEEL
Every Kind
Quick Delivery
Plates, Structurals, Bars, Sheets, Tubes, etc.
Carbon, Alloy, Stainless Steels, Babbitt Metal.
RYERSON
Joseph T. Ryerson & Son, Inc. Plants at: New York, Boston, Wallingford, Conn., Philadelphia, Charlotte, N. C., Cincinnati, Cleveland, Detroit, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Spokane, Seattle.

LEADITE
The Pioneer Self Caulking Material for C. I. Pipe
Thousands of miles are—

Jointed with LEADITE for Satisfaction and Long Life
because Leadite makes a good, tight joint that improves with age . . . and in addition saves on installation costs.
Write for Literature.
THE LEADITE COMPANY
Girard Trust Co., Bldg., Philadelphia 2, Pa.
No Caulking

Purchasing

on Edwards St., adjacent to the B&HS railroad, and will employ about 100 persons.

Price Brothers already has plants in Dayton, Cleveland and Columbus, Ohio; Detroit, Mich.; and Miami, Fla.

Traffic Signal Coordination

The PR system of coordinated traffic control is the latest development in the signalizing of downtown grids of all types as well as major traffic arteries. The newest feature of this system is the local controller, which is the first all-electronic local control for coordinated signalling. The first installation was made in Atlanta and, among others under way or planned for early installation are Baltimore, San Antonio, Chattanooga, Louisville, White Plains, Orlando, Coral Gables and Waco.

This system utilizes all of the traffic analyzing abilities of the Electro-Matic master. By combining the features of both the master and the locals, there is obtained a flexibility and efficiency of traffic control that was not previously available. The master selects cycles and offsets best suited to prevailing traffic conditions and the locals at once respond through a range of four offsets and three cycle splits with six different cycle lengths.

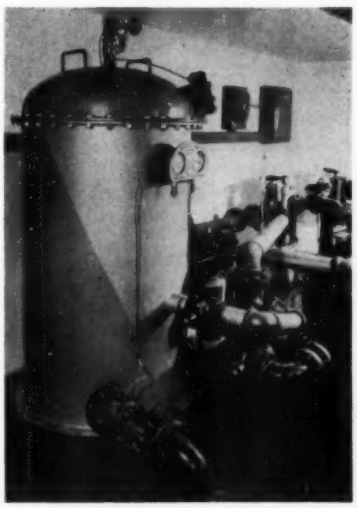
For full details on the PR system, write for *Bulletin E-224* to the AUTOMATIC SIGNAL DIVISION, EASTERN INDUSTRIES, INC., NORWALK, CONN., or you may use the Post Card located for your convenience on the insert following Page 52. Circle No. 938.

U. S. Plywood Opens West Coast Branch

Fred B. Smales, vice-president and West Coast regional manager for the United States Plywood Corp., announces the opening of a new branch office and warehouse in Santa Ana, Calif. The modern one-story structure, located at 1124 Seventeenth St., is constructed of reinforced concrete and has 16,200 square feet of floor space. It is served by a railroad siding and a loading dock for truck accommodation.

The new West Coast branch will be under the direction of Beryl Abbott, a member of United States Plywood since 1936. Main offices of the company are located in the Weldwood Bldg., 55 West 44th St., New York 36, N. Y.

New, Low-Cost Filter for Swimming Pools



Water in municipal swimming pools may be kept clean and inviting by installing this new diatomaceous earth-type filter. The filter features a vertical tank with a built-in turbo-jet backwashing arrangement, and a baked-on plastic coating inside. It is available from SWIMQUIP, INC., 3301 GILMAN RD., EL MONTE, CALIF.

The largest filter in the new "Centri-Mite BF" series measures only 36 inches in diameter and 6 feet-6 inches high, and has a flow rate of 343 gallons per minute. Backwashing is more effective through a 2-phase cycle. The customary reversed flow is used first, then, the turbo-jet washes down filter elements with a rotating stream of water.

Swimquip BF Series filtration is economical to install, lasts longer, and takes up less space. In addition to large filters, there are intermediate sizes, down to a 20-inch diameter model, filtering 83 gallons of water per minute.

Additional information may be obtained directly from Swimquip, Inc., or you may use the Post Card on the insert following Page 52. Circle No. 934.

New, One-Man Pipe Pusher

Installing water and gas pipe under streets, sidewalks or lawns is fast, easy and economical when you use the new Pow-r Mole. One man operating this compact device can dig the trenches, attach the unit to any tractor-mounted hydraulic backhoe, insert the pipe sections, and operate the tractor hydraulics. No air compressors, jack hammers or winches are needed.

The new Pow-r Mole has a 4-inch stroke and operates at up to 30 tons pressure. It can push over 100 feet of ¾-inch pipe with no strain on the tractor and without losing direction. If a major obstruction is encountered, the pipe can be pulled out and pushed in a different spot. All you do to reverse direction is change the position of two drag springs. You don't have to turn the tractor around.

Additional data on the economical Pow-r Mole may be obtained from POW-R DEVICES, INC., DEPT. 169, CLARENCE CENTER RD., CLARENCE CENTER, N. Y. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 933.

New Hydraulic Crane for I-H Tractors

Easily mounted at the rear of any International 300 utility tractor, this new hydraulic crane is capable of handling sewer pipe, water pipe and construction forms, leaving larger cranes free for heavy-duty jobs. The low-cost unit is powered by the hydraulic pump of the tractor. One large cylinder raises and

CONCRETE REPAIRS THE MODERN WAY

True GUN-ALL
Wet-mix pneumatic concrete

SIMPLE TO OPERATE

EASILY MOVED FROM JOB TO JOB

USES ONLY MATERIAL ACTUALLY NEEDED

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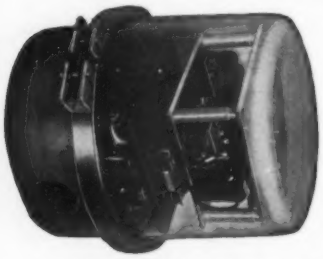
TRUE GUN-ALL EQUIPMENT CORPORATION
P. O. Box 2526 • Tulsa, Oklahoma

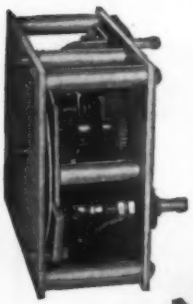
TIME-O-MATIC FLASHERS

JACK MOUNTED

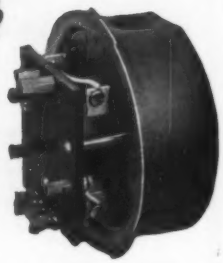


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC

↓

"A Sign of Good Control"

•

TIME-O-MATIC INC.

P. O. Box 850
1108 Bahls Street
Danville, Illinois

Purchasing News

lowers the boom, and two cylinders, at the base, control its 122° swing.

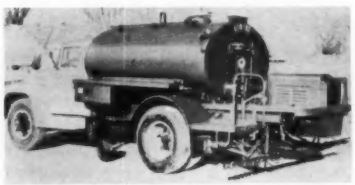
Cable can be run over the pulley at the end of the 10-foot boom or over another pulley, closer in, at 7½ feet. Lift capacity is 1,000 pounds at the 10-foot length, or 2,000 pounds at 7½ feet. The winch is mounted on the boom and is operated by a hydraulic motor driving through a speed reducer.

Additional data on the new hydraulic crane may be obtained from the INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 936.

Bituminous Distributor

A sure way to lower street construction costs in your municipality is to put a Model BX "Black-Topper" bituminous distributor on the job. The new Model BX offers positive control of application rate, accurate material distribution, and fast, economical operation. It is designed to handle all types of bituminous materials, including the heaviest grades.

Tank sizes of the new distributor range in capacity from 800 to 4,000 gallons. Each size is furnished with a 375-gpm pump, front or rear engine mounting,

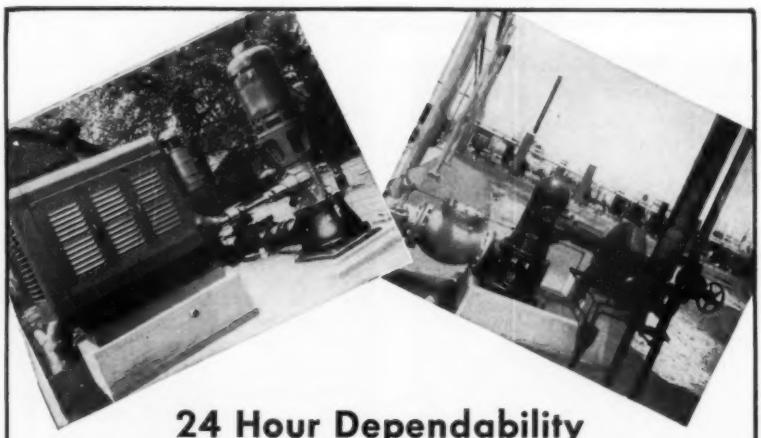


generating-type or low-pressure burners, full 8-inch flues, and all necessary controls and accessories.

A new bulletin describing the Model BX may be obtained from E. D. ETNYRE & CO., OREGON, ILL. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 935.

Modern Adding Machines

In 1931 the Underwood Corp., 1 Park Ave., New York, N. Y., introduced the Sundstrand portable electric adding machine, which, with the Underwood elec-



24 Hour Dependability

JOHNSON *Right Angle* DRIVES

Municipal and Industrial Coverage

For Water Supply • Flood Control • Sewage

TYPE	DESIGN
Engine and Turbine Driven	Hollow and
Combination and Dual	Solid Shaft

Illustrated Engineering Catalogs On Request

JOHNSON GEAR & MANUFACTURING CO.

Main Offices and Works • Berkeley 10, California

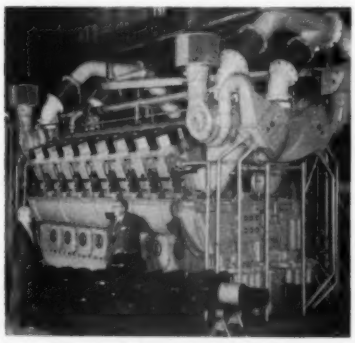
tric typewriter, was a step toward office automation. A million Sundstrand adding machines are now in use. At present, Sundstrand adding machines are

Fred M. Farwell, president of the Underwood Corp., New York City.

sold through Underwood offices in 718 U. S. cities, 62 Canadian cities and 600 cities overseas. The company is planning the next million Sundstrand adding machines with emphasis on color, styling and a rugged product.

Saudi Arabia Gets New 7,000-hp Diesel Engine

The largest diesel engine ever built on the West Coast and the newest in the company's line of marine and stationary diesels, was unveiled recently by



John Sheusner, left, manager of operations for Enterprise Engine & Machinery, and William Clausen, executive vice-president and general manager of the firm, inspects the new 7,000-hp engine.

the Enterprise Engine & Machinery Co., 18th & Florida Sts., San Francisco 10, Calif. The 16-cylinder V engine, Model RV, has a rating of 7,000 hp at 40 rpm. It has been sold to the Saudi Arabian government for electric power generation.

This Jaeger pumps all the water a 2" hose can handle Hi-performance Jaeger Model 2PN will actually pump all the water that can be pulled through a 2" suction line under average working conditions. Delivers 10,000 gph when operating at only 2400 to 2550 rpm (as much as 400 rpm below the speeds of similar ordinary pumps). Weighs only 160 lbs. on base, 190 lbs. on pneumatics. For complete information on this model or other Jaeger pumps, see your Jaeger distributor or send for Catalog P-4.

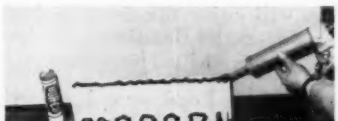
Other sizes 1½" to 10"

THE JAEGER MACHINE COMPANY 505 Dublin Avenue Columbus 16, Ohio

LOADERS • COMPRESSORS • MIXERS • PAVING MACHINES

BIRD DAMAGE CAN BE STOPPED

Bur-Co Bird Repellent will pay for itself many times in labor saving and the elimination of building repairs. It does not harm birds—they instinctively dislike Bur-Co. There is no chemical reaction to any building material. It will not harm humans. Each application applied properly, as described below, will eliminate birds for one year or longer.



One ribbon of Bur-Co about ½ inch thick as shown at the top of this illustration is sufficient for a narrow ledge. Slightly larger ledges can be treated with two such ribbons 4 inches apart. The zigzag treatment, also shown above, for wider areas. Write today.

BURR CHEMICAL CO.
3329 AUBURN Dept. II ROCKFORD, ILL.

SAVE MONEY
SEND US YOUR ORDERS FOR ROTARY SWEEPER NEW BROOM CORES

Do You Know We Manufacture NEW Cores of the following Types:

- Grace (3 types)
- Hough
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- Little Giant
- Huber
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- Spearswell

and other popular makes

YES! We Can Make Cores to Your Specification

We Rebuild—Repair—Refill All Makes and Sizes of Broom Cores.

Immediate Shipment

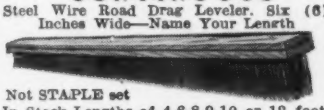
SUGGESTION—To Far-Away Users—Buy your NEW Cores only without any filling or we will furnish complete Palmyra-Hickory or Bass Fibres—Even Steel Wires.

Road Builders—It's Sensational!!

BIG **PECKERWOOD** BIG

C-O-N-T-I-N-U-O-U-S

Steel Wire Road Drag Leveler. Six (6) Inches Wide—Name Your Length

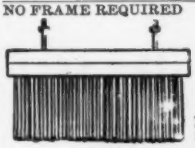


Not STAPLE set

In Stock Lengths of 4-6-8-9-10 or 12 foot. Only $3.50 Foot

"Approx. wt. 5½ lbs. per ft."

NO FRAME REQUIRED



The LITTLE PECKERWOOD
3" Wide. 15" Length
This Fits Your Frame
NOTE—Both Drags Can Be Furnished with Fibre.
Only $2.50 Ea.

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Since **VAN BRUSH MFG. CO., INC.** 1928
327 Southwest Blvd., Kansas City, Mo.

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with Financing Today:

IF TEMPORARY FINANCING WILL SOLVE YOUR PRESENT MONEY NEEDS...

Call our Municipal Dept. Collect

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HEADQUARTERS
FOR
FIRE EQUIPMENT
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ESTABLISHED 1908
CHICAGO 12, ILLINOIS

The Brighton

Atlantic City, N. J.

One of America's Finest Hotels

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You will enjoy this friendly hotel right on the Boardwalk in the center of all activities

Delicious Food served in an atmosphere of Charm and Hospitality

Modified American and European Plans

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COCKTAIL LOUNGE and BAR with Nightly Entertainment

•

The Home of the Famous Brighton Punch
Alfred A. Taxin, President

Purchasing

Seagrave's A Youthful 75

"Seventy-five years is much more than the life of the average business," writes Lester Stevenson, president of The Seagrave Corp., Columbus, Ohio, in an appealing and informative brochure, "75 Years With Seagrave." "We have been with this job of fire-fighting since the days of the old bucket brigade," he continues, "and have done a great deal to make it the modern, efficient organization it is today. We always say, 'A Seagrave is All Seagrave.' That is why we build our own engines, bodies, pumps, ladders and frames."

Preceding Mr. Stevenson's remarks in the brochure are seven pages of historic Seagrave fire apparatus evolution up to 1938. Thereafter are 15 pages of colorful, modern pumping engines, and tractor-drawn aerial ladder trucks with canopy cab and with semi-cab. These pages are quick reading and tend to instill confidence that most fires will meet their match in today's anti-fire weapons.

Detroit Diesel Expands Sales and Service Staffs

The Detroit Diesel Engine Division of the General Motors Corp., Detroit 28, Mich., has expanded its administrative sales and service facilities by establishing regional operations in six key cities throughout the country. Headquarters for regional areas have been established recently in New York, Atlanta, Detroit, Chicago, Dallas and San Francisco. In charge of the regions are the following regional managers:

L. A. Steele, New York; R. W. Phillips, Atlanta; J. C. Campbell, Detroit; D. E. Schwendemann, Chicago; Eric Sutton, Dallas; and R. L. Burpee, San Francisco.

New York Distributorship for Le Roi Division

A New York area distributorship, the Le Roi Equipment Sales Co., Inc., has been established to distribute products manufactured by the Le Roi Division, Westinghouse Air Brake Co., Milwaukee, Wis. The firm manufactures and markets portable and stationary air compressors, air tools, internal combustion engines, and engine generator sets. The New York outlet is located at 50-15 Jacobus St., Elmhurst, L. I.

Hugh H. Goodwin has been named vice-president and general manager of the new distributorship.

About People

John George Hagan, president of the Elmhurst Contracting Co., Inc., and other construction firms, died recently at Ciudad Trujillo, Domincan Republic. He was 53 years old. Mr. Hagan had been in the contracting business for 28 years. His company had a part in the building of the Triborough Bridge, the West Side Highway, the New York Thruway, and road and bridge projects in Central and South America.

John George Hagan

When the **Portland Cement Association** opens its new district office in Trenton, N. J., the office will be headed by Albert L. Blackwell, district engineer. Three field engineers of the company's New York office, W. B. Dallas, K. M. Huber and J. J. Kane, have been transferred to Trenton. Main offices of Portland Cement are located in Chicago, Ill.

Clifford F. Hood, president of the **United States Steel Corp.,** Pittsburgh, Pa., will be the banquet speaker of the Sixth Semi-Annual Meeting and Winter Conference of the Manufacturing Chemists' Association, Inc. The all-day meeting will be held at the Statler Hotel, New York City, later this month.

C. V. Blackburn, vice-president in charge of sales for the **Stran-Steel Corp.,** Ecorse, Detroit 29, Mich., announces the appointment of Donald Foster as manager of dealer business management. Mr. Foster was formerly assistant to the comptroller of the Motors Holding Division of General Motors Corp.

John H. Goodwin, vice-president and general sales manager of the **Johns-Manville Pipe Division,** announces the appointment of James G. Walker as Northeastern regional sales manager. Mr. Walker succeeds the recently retired Charles T. Dearborn. Main offices of

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THE J. M. CLEMINSHAW CO.

Appraisers

Nationally Recognized for Municipal and County Revaluation Since 1923

An Authoritative Professional Service Universally Accepted by Assessing Officers and the Taxpaying Public

Write for Brochure and Client List

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Cleveland 9, Ohio

District Offices:

Hohokus, N. J.	50 Edgewood Dr.	Tel. Gilbert 4-4883
Plainville, Conn.	11 Williams St.	Sherwood 7-0676
Milwaukee, Wisc.	2014 Sunset Court	Tel. Spring 4-6680

CITY MANAGER Wanted

City of Milford, Delaware is receiving applications for the position of City Manager.

The City owns and operates: Electric Distribution System, Water and Sewer Systems and Sewage Disposal Plant.

Address Applications to:

Mayor and Council

Milford, Delaware

Sewage Disposal Plant Operator Wanted

Desirable qualifications: High School Graduate with 5-10 years practical experience.

Address applications to:

Village Manager
Lombard, Illinois

the Johns-Manville Corp. are located at 22 E. 40th St., New York 16, N. Y.

Succeeding Frank G. Hough as president and chief operating officer of **The Frank G. Hough Co.,** Libertyville, Ill., is G. A. Gilbertson, formerly executive vice-president and general manager of the firm. Mr. Hough was recently elected to the newly created office of chairman of the board of directors.

G. A. Gilbertson

Dudley W. Day, vice-president and general manager of the Penn Instrument Division, **Burgess-Manning Co.,** Philadelphia 4, Pa., announces the appointment of the Frank E. Early Co., of Detroit, as the exclusive Michigan representative for the Division's municipal and industrial metering products.

New managing director of the materials and supplies division of the **American Road Builders' Association,** Washington, D. C., is John E. Wiley, assistant executive secretary of the American Association of State Highway Officials. Mr. Wiley will administer staff work on materials specifications, standardization and technical investigations, and will initiate remedial action in case of supplies shortages.

The Dravo Corp., Neville Island, Pittsburgh 25, Pa., announces the appointment of Edgar M. Pierce to supervise the design, engineering and installation of incinerators for municipal and industrial garbage, refuse, and sewage sludge disposal. Mr. Pierce was formerly president of Combustors, Inc.

Francis S. Friel, president of **Albright & Friel, Inc.,** consulting engineers, Philadelphia, Pa., was recently elected vice-president of the American Society of Civil Engineers. Mr. Friel is a member of the board of trustees of the Drexel Institute of Technology, past president of the American Institute of Consulting Engineers, and chairman of the United States Committee on Large Dams of the International Commission on Large Dams. He is also the immediate past president of the Pennsylvania section of the AWWA.

The Asphalt Institute announces the assignment of Fred N. Finn as research engineer on the forthcoming $14 million AASHO Test Road project in Illinois. Mr. Finn will be designated as special project engineer for the Institute during the construction and operation of the asphalt test pavement now being built between LaSalle and Ottawa, Ill. The 4-year test, sponsored by the American Association of State Highway Officials, is expected to get under way late next year. Main offices of the Asphalt Institute are located in the Asphalt Institute Bldg., University of Maryland, College Park, Md.

Frank E. Farnan, advertising manager of **A. M. Byers Co.,** Pittsburgh, Pa., has been appointed assistant to the vice-president and acting chief executive officer, Buckley M. Byers. Scheduled to succeed Mr. Farnan as advertising manager is Theodore W. Crouch.

The most recent addition to the sales staff of the **Marlow Pumps Division, Bell & Gossett Co.,** Midland Park, N. J., is Harry Kociencki, formerly an application engineer with the Worthington Corp. Mr. Kociencki will handle contacts with Marlow dealers and distributors.

C. Frank Riddle has been appointed product manager for the Pulvi-Loader Division of the **Seaman-Andwall Corp.,** Milwaukee, Wis. The company has also named a new product manager, Frank D'Amato, for its line of Century material spreaders.

Stanley Engineering Co., consulting engineers, Muscatine, Ia. and Chicago, Ill., has advanced Frank W. Edwards to the position of associate in the firm. Mr. Edwards will continue his responsibilities as manager of the company's Chicago office.

As new sales manager for the **J. H. Holan Corp.,** 4100 W. 150th St., Cleveland, Ohio, John Kott, Jr., will supervise the sales of utility bodies and associated power equipment. Mr. Kott, formerly assistant sales manager at Holan, will work under the direction of Victor H. Warner, vice-president and general sales manager.

John Kott, Jr.

Joe H. Serkowich, vice-president of **Aubrey, Finlay, Marley & Hodgson, Inc.,** Chicago advertising agency, has been made a director of the company, according to a recent announcement. Mr. Serkowich is account supervisor on the Construction Equipment Division of the International Harvester Co. He was formerly associated with Caterpillar, Westinghouse Air Brake and LeTourneau-Westinghouse.

Bruce and Robert McDonald, sons of D. L. McDonald, president of the **A. Y. McDonald Mfg. Co.,** Dubuque, Ia., recently joined the 100-year-old firm. Bruce McDonald is now a member of the firm's factory production department, and Robert McDonald has joined the sales department.

From the **Neptune Meter Co.,** 50 W. 50th St., New York City, comes news of the appointment of John J. Moran as sales representative in six southern New York State counties. Mr. Moran will travel in Westchester, Ulster, Sullivan, Dutchess, Orange, Putnam and Rockland counties.

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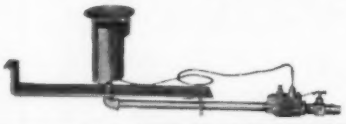

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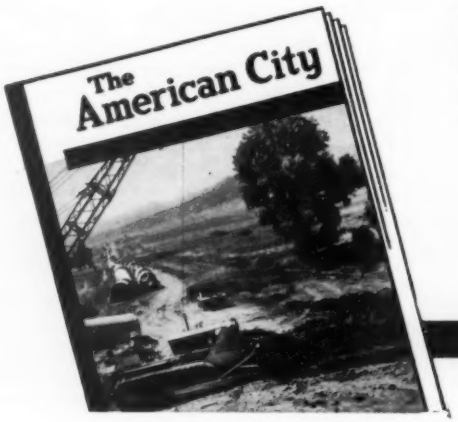

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THOSE SUBSTITUTE PARTS ARE SO NOISY! I HAVEN'T SLEPT A WINK ALL DAY!
DON'T WORRY, DEAR — THAT MACHINE'LL BE DOWN FOR REPAIRS IN NO TIME!
SCREECH!
SCREECH!

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Take a substitute anti-friction bearing. Probably looks exactly like a Caterpillar part. But remember, there are many different bearings that fit a shaft and bore, yet only *one* may be right for maximum performance—the one designed especially for the machine—the one tested, specified and supplied by Caterpillar.

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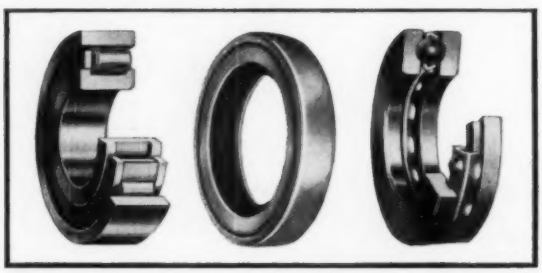
Better see your Caterpillar Dealer's Salesman—and get Cat original parts every time.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



Each Cat anti-friction bearing and lip-type seal has been proved best for its particular application. Each one is assigned a Caterpillar part number—used only for that part in that application. Can you be sure with so-called "will-fits" and "look-alikes"?

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SMARTER APPEARANCE

LOWEST OVERALL COST

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LONGER LIFE

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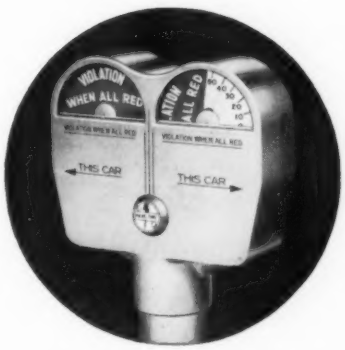

Simple in design, rugged in assembly the Mark-Time "Hurricane" Manual Parking Meter is built to withstand the hardest usage in every kind of weather and condition of service . . . It's *always* on the job!

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Costs of city work seem too high?

LOOK HOW SANGAMO CONSTRUCTION CO. CUTS THEM

This well-known 30-year-old Springfield (Illinois) firm, a year ago, had a problem common to most city-area dirt-movers. Equipment transportation costs and traffic slow-downs were boosting the cost of all their municipal work. Small one-day or weekend jobs often couldn't be handled because their equipment was either too small to do the work fast or too big to move economically. Sangamo, however, found a solution. They bought three Michigan Tractor Shovels.

Drive, turn non-stop on narrowest city streets

All these units can be on their way to any kind of loader job in minutes. "These rigs go anywhere," says Clyde Turner, one of Sangamo's job superintendents. "They can run three or four blocks, through auto and truck traffic, in a minute or so. Twenty-seven miles takes only an hour. Rubber tires don't tear up asphalt or oil-mat pavement. They can even go up on a sidewalk without breaking it or the curbing. And our Model 75A's (which are 6′ 8″ wide and 16′ 10″ long) can turn around non-stop on the narrowest city streets."

Does job of bigger machines setting 12 inch sewer pipe

Often, one of the Michigans is assigned to a major job where maneuverability is vital in speeding completion. Preceding photograph shows typical task of this type—laying eight miles of 8, 10, and 12-inch sewer pipe for the city of Decatur (Illinois). Daily—almost hourly—this Model 75A shuttled between *three* crews. Tasks included pushing spoil away from trencher . . . backfilling . . . transporting and laying pipe. At times, it set manholes weighing 1200 to 1500 lbs per ring section. Biggest advantages proved to be speed (a typical half-mile trip took 75 seconds) . . . rugged construction (in a summer of work, no time was lost from the job for repairs) . . . planetary axles (which eliminated all axle breakage despite rugged lifting demands).

Carries 1800 lb water main section

Bigger loads have been no problem for the Michigans, either. Above, the second of Sangamo's 80 hp Model 75A's carries an 1,800 lb, 18 ft section of 20 inch water main. This unit *can* lift 8,000 lbs while standing still . . . can carry 4,000 lbs at 4 mph.

Clears, loads 1,000 yards of rubble in 1½ days

Sangamo's third Michigan Tractor Shovel, a 95 hp, 1⅝ yard Model 125A, also handles assignments where speed is important. Here it's on a historical job in Springfield—clearing the wreckage of Illinois' first governor's mansion to make way for a parking lot. Entire 1,000 cubic yards of rubble and dirt was piled and loaded out in 1½ days. Sangamo Construction bought this machine, their first Michigan Tractor Shovel, after having it demonstrated (to quote Company President, Bill Kewley) "on the toughest tractor shovel work we could find—digging up wet rocky ground to improve drainage around a Springfield sewage treatment plant. Later," Kewley continues, "it proved so handy and so dependable, all our crews wanted one. So, in 5 months, we bought our second Michigan, and, 3 months later, our third."

Stockpiling gravel is another job for the busy Model 125A. While at this city-located yard, rig sometimes loads trucks and railroad cars, feeds the crusher, does cleanup. Its standard 1⅝ yard bucket, incidentally, is interchangeable with 2 yard light-material bucket. The model 75A's standard 1 yard bucket interchanges with ¾ and 1½ yard sizes. Both models can also be equipped with crane hooks, fork lifts, backfiller blades, scarifiers and root rakes. For small jobs, you can get a Michigan Model 12B with 6, 10, 15, 20, or 27 cubic *foot* capacity . . . for big jobs you can get a Michigan Model 175A with 1⅝, 2, 2¼ (standard), 3 or 5 cubic *yard* capacity.

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Construction Machinery Division

2495 Pipestone Road

Benton Harbor 35, Michigan

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